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JOURNAL

OF THE

Michigan Schoolmasters' Club

FIFTY-THIRD MEETING

Held in Ann Arbor, March 28, 29, 1918

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TABLE OF CONTENTS

	PAGE
Editorial	7
Experiments in the Education of Gifted Children..... <i>G. M. Whipple</i>	8
Can Greek Come Back..... <i>W. N. Stearns</i>	24
Latin from the View Point of the Inspector..... <i>J. B. Edmonson</i>	30
The Classics and Democracy..... <i>A. G. Canfield</i>	31
Socializing Latin	<i>Flora I. Mackenzie</i> 32
Aims and Problems of Junior High School Latin..... <i>B. L. D'Ooge</i>	37
Latin in Junior High Schools..... <i>Laura N. Wilson</i>	39
German Teaching During and After the War..... <i>J. W. Sholl</i>	41
The Business Man's Conception of the Values of Literature..... <i>F. A. Gause</i>	50
English and the Project Method..... <i>G. A. Lasher</i>	61
The Study of Contemporary History..... <i>Bessie L. Priddy</i>	68
The Need of Specially Trained Teachers in History... <i>Paul C. Stetson</i>	72
Some Apparatus Possibilities..... <i>F. R. Gorton</i>	75
A One Year Course in Household Chemistry..... <i>H. S. Doolittle</i>	76
Group Recitations in Mathematics..... <i>L. D. Wines</i>	82
The Value of Measurement to High School Mathematics. <i>S. A. Courtis</i>	87
War and the Physiology Teacher..... <i>Grace Ellis</i>	95
Food Accessories, their Necessity, and their Distribution in Foods.... <i>J. B. Pollock</i>	101
Teaching Business Correspondence..... <i>E. H. Gardner</i>	105
What the High School Owes the Commercial Student who Cannot Graduate	<i>T. J. Knapp</i> 111
Commercial Geography from the Regional Point of View. <i>R. D. Calkins</i>	113
What Superintendents and other School Administrators Ought to Know of Educational Measurement..... <i>G. M. Whipple</i>	120
Synopsis of Business Meeting	132
Program of Meeting	135
List of Members	149
• Advertisements	158

Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-THIRD MEETING, HELD AT
ANN ARBOR, MARCH 28, 29, 1918

EDITED BY THE SECRETARY

GENERAL MEETING

The week of March 25-30 saw gathered in Ann Arbor many of the most important educational organizations of the state. These were the Michigan Association of Superintendents and School Boards, Short Term Institute, Classical Institute, Michigan Principals' Association, Michigan Academy of Science, Michigan State Federation of Teachers' Clubs, Michigan Interscholastic Athletic Association, and the Michigan Schoolmasters' Club.

On account of the war, and the scarcity of coal, which closed many schools during the winter, the officers and many members of the club predicted a small attendance at the annual meeting. Much extra effort was therefore put forth by the officers and friends of the club to keep up the record of an ever increasing attendance at its meetings. This they attempted to do by an exceptionally good and well advertised program, knowing full well that they could depend upon the loyalty of the Michigan teachers to help them. Those present at the meetings know the surprising results. Others have but to look at the long list of names at the back of this Journal to see these results. The meeting was one of the best attended and one of the most enthusiastic in the history of the club.

The general sessions were held on Thursday and Friday mornings, in University Hall. On Thursday morning was held a joint session of the Short Term Institute and the Schoolmasters' Club, when Professor John Dewey, of Columbia University, lectured on "Recent Psychological Contributions to Education," and President Walter A. Jessup, of the University of Iowa, lectured on "The School and the Curriculum."

On Friday morning Professor Guy Montrose Whipple, of the University of Illinois, gave the results of his "Experiments in the Education of Gifted Children," and Mr. Wells, of Washington, D. C., spoke upon "The Boys' Working Reserve." On Thursday evening, Superintendent William Wirt, of Gary, Indiana, gave a splendid lecture on the Gary System, by means of moving pictures.

GENERAL SESSION

EXPERIMENTS IN THE EDUCATION OF GIFTED CHILDREN

PROFESSOR GUY MONTROSE WHIPPLE, PH. D., PROFESSOR OF EDUCATION,
UNIVERSITY OF ILLINOIS

Our consideration of almost any problem can be facilitated by turning attention first upon its extreme or exaggerated aspects. So here, too, most of the particular questions that arise when we raise the general questions—what are gifted children like? How should they be educated?—can be most neatly outlined by considering first, experiments in the early education of a number of children of quite extraordinary development.

One of the most extraordinary children ever known is Christian Heineken, born in Lübeck, Germany, in 1721, whose brief career is pictured in a book by his teacher, Christian von Schöneich.¹ There we read that the father was a painter, that the mother was unable to nurse the boy and secured a nurse for him, in whose arms he practically remained until his death in his fifth year. When the baby was 10 months old, it was noted that he looked intently at the pictures in the wall-frescoes and on the characteristically decorated German stove, so he was told the name of each picture—*cat, mountain, lamb, castle*, etc. Next day he pointed correctly to each of these pictures as it was named and strove to repeat the names as well. Struck by this exploit, his parents determined to begin his education at once and secured for him a regular tutor. His “education” consisted in listening to and repeating, as well as he could, biblical stories. When a year old, if we may believe his biography, he had learned by heart the five principal stories of the book of Moses and could recite verses on the creation. In another month he was said to have learned the rest of the old testament stories and in yet another the stories of the New Testament. An attempt to wean him about this time proved unsuccessful: instead of eating the food placed before him, he asked its name, its sources, what other things came from that source, etc. He showed irritation or bad temper only when his people refused to answer his steady flow of questions. For two years now he was instructed in the history of the world and von Schöneich assures us that he could answer any question put him on the history of the Hebrews, Egyptians, Assyrians, Persians, Greeks and Romans. At four years, having had continuous instruction meanwhile, he could count, add, subtract and multiply, knew the names of all the bones and muscles in the body, could recite stories in French, knew

¹*Leben, Taten, Reisen u. Tod eines sehr klugen u. sehr artigen 4 jähr. Kindes, Christian Heinrich Heineken, aus Lübeck, 2 Aufl. 1759*, or the “Life, Doings, Journeys and Death of a Very Clever and Very Well-behaved four-year-old Child, Christian Heinrich Heineken, of Lubeck.” A summary will be found in *Zeits f. Kinderforschung*, 15: 1910, 225-9.

1,500 Latin proverbs, could read printed and written German and had picked up low-German from his nurse.

The boy's fame spread through the half of Europe and crowds came to visit him. When, at three and a half years, a sea voyage was ordered for his health, he journeyed to Copenhagen, made various comments in formal Latin upon the events on shipboard, delivered a lengthy address in French to the King of Denmark, and astonished all his hearers by his historical and geographical erudition. Unfortunately, after his return to Germany, the boy grew gradually weaker and died at four years, four months, truly as his tutor declares—"a wonder for all time."

What light does this Heineken case throw upon our general problem? I believe it raises immediately a number of questions that we shall encounter again and again when dealing with gifted children.

Thus, first of all: *how reliable is the evidence of the child's accomplishments?* We have no way of knowing just how accurately little Christian's life has been reported to us: a little exaggeration by his teacher and historian might be expected and even condoned. Even if we discount the narrative by fifty per cent, it is still quite wonderful enough. However, experience shows that the accounts at our disposal of many extraordinary children are tinged with hyperbole or at least that they are couched in somewhat ambiguous phraseology, so that we often lack just that precision of statement that we need if we are to arrive at exact conclusions concerning the child's native endowment, the educational measures that were employed and the real extent and what is more important the real limitations of the prodigy's accomplishments.

A second question: *Was the child's ability all-round or restricted to some specific talent or group of talents?* Again, we have little means of knowing in this case, for the obvious reason that the child did not live long enough to show what his power might have been outside the limits of bookish erudition. It is at least conceivable that his exploits, extraordinary as they were, hinged entirely upon an exceptional memory and nothing more. He must have had an incredibly "sticky" memory, but we do not know whether, had he lived, he would have shown good "horse sense" or possessed enough initiative to have done creative work.

A third question: *Was the child's very early and very persistent training carried on at the expense of his physical health and development?* Of course, he might have died before his fifth birthday if he had had the best of medical attention and had never heard of the creation of the world; possibly his intellectual appetite dominated his physical appetite because of some curious freak of nature, yet we are unable to resist the notion that there would be indicated in a case of this sort more attention to the stomach and less to the brain. Most persons will exclaim: "Oh, what a shame to treat a poor baby that way!" But, if we assume for the sake of argument that

early mental training was desirable in the case of Baby Heineken, we are confronted with a fourth question:

What ought to be the subject matter of instruction in the early years of a gifted child's life? If you had been the tutor employed by the Heineken's, would you have proceeded to drill him, during the second and third years of his life, in the stories of the old and New Testaments? Would you have taught him 1,500 Latin proverbs? Would you have poured into him the history of the world? Or quizzed him on the anatomy of the human body? Would you, saving the anachronism, have employed the Froebelian kindergarten methods? Or the Montessori system? It is not hard to say what you would *not* do. But what *would* you do?

A fifth question: *Was the exceptional accomplishment of this child due to his hereditary endowment or to his educational training?* We have no precise information. He could not have recited 1,500 Latin proverbs unless he had been taught them by his tutor. Granted. But could this tutor have taught 15, let alone 1,500, Latin proverbs to *any* Lübeck baby? I fancy not. Surely, little Christian must have been born with some most unusual configuration, or some most unusual plasticity, of his central nervous system, that was congenital whether hereditary or not. All that we do know of similar cases indicates that endowment and training must have combined to produce the result.

This last question directs our attention naturally to another interesting child, Viola Olerich², who was adopted in order that Professor Olerich might prove that postnatal education is vastly more important than inheritance or any sort of mystical prenatal education. Viola's attention was called to pictures at thirteen months. She was taught to read at seventeen months by the aid of cards and the sentence method and was reported to have read anything fluently before her third birthday, about which time she learned to use the typewriter and began to study German, again by the sentence method. The study of French followed soon afterward. Attention was also paid at an early age to the perception and identification of geometrical forms. At 21 months she could draw vertical, horizontal and oblique lines, a ladder, a circle, etc., and could fetch when asked by name any one of 34 geometrical forms. In general, her education was planned systematically from the start, with emphasis upon the use of play and upon the cultivation of interest in various directions. She gave exhibitions and seemed greatly to enjoy the applause. I have seen no report of her subsequent mental progress.

That Viola Olerich had by endowment unusual capacities of attention, retention, discrimination and perhaps of critical judgment seems to me evident from her work. In my judgment Professor Olerich's "demonstration" of the superiority of nurture over nature lacks one very important element,

²H. Olerich. The cleverest child in the world. *Strand Mag.* 20; 1900 130-6. Also cited briefly in *Ped. Sem.*, 7: 1900. 455.

namely, that while we have no record to demonstrate our conviction that Viola had exceptionally good mental heredity, neither has he any record to disprove it. A Binet examination, for instance, to show the mediocrity or original inferiority of a child subsequently made the object of forced early training would be something greatly to be desired.

In the eastern United States attention has been focused during the past few years upon a group of remarkably gifted children, particularly upon the four Berle children, Norbert Wiener, William James Sidis and Winifred Stoner. All of these have become noted for their intellectual precocity.

Of young Sidis we read that his formal education began before the age of two, that he learned to read and spell by the aid of blocks before three, learned the typewriter well before four, entered school at six, where, according to one writer, he "finished the grades" in half a year. However, we find that he studied at home for two years before entering the high school at eight where he remained but three months. Opinions seem to differ as to the responsibility for his withdrawal. The teachers were apparently glad to have him leave, found him full of pranks and a disturber of schoolroom discipline. His father, on the other hand, contends most vigorously³ that the school of the present day is beset with formalism and totally inadequate to, and inappreciative of, a boy whose early training has been properly carried on. Be that as it may, the boy devoted himself during the next year or two mainly to mathematics and was able in that time to master algebra, geometry, trigonometry, differential and integral calculus! Think of it! At the age of eleven he entered Harvard as a special student and devoted himself mainly to courses in mathematics and science. Quite recently he has been teaching at the Rice Institute, Houston, Texas.

Is Sidis hereditarily gifted or merely extra skillfully taught? The father declares that the boy is not specially gifted, that his accomplishments are the fruit of scientific training and instruction, begun as soon as the baby could talk. If this be the case, then truly we shall have to revise our entire conception of elementary education, if not of higher education as well. Children will read at three, typewrite at four, begin foreign languages at five, "clean up" their higher mathematics at ten, and enter college at twelve. Yet I feel sure that to suppose that Dr. Sidis or Mrs. Stoner or Professor Olerich or any other parents or trainers of these extraordinary children could achieve the same results with any average child is to fly in the face of everything that observation or science has taught us of mental inheritance and mental development. In the case of young Sidis the evidence points to the inheritance of an unusual amount of capacity in a restricted field, that rather roughly designated as "mathematical ability." Sidis is one of these "sharks at math.," to speak in up-to-date college slang. It does not appear that his accomplishments in other directions are at all no-

³Boris Sidis, *Philistine and Genius*. New York, 1911, 105 pp.

table; in fact, from those who have been in a position to know I am informed that his handling of language was certainly inferior to the average entering student at the time he entered Harvard. Nor is there lacking evidence that in his youth his egoism was not restrained by those checks that would have been present in most children, even of precocious general development. Witness his query: "I wonder whether the school children in future generations will celebrate this as a holiday because it was the day on which I began the study of the physical sciences!"

Perhaps best known of these gifted children of recent years is Winifred Stoner, whose early education has been described by her mother in her book called *Natural Education*, and whose achievements have furnished subject matter for numerous magazine articles. Like these other children, her education was begun in early infancy; she was lulled to sleep by lines of Virgil's *Aeneid*, scanned in the original Latin, and she is said to have scanned from memory the first book of Virgil at the age of five. She kept a diary from the age of two; before three she had not only learned to read, but she had also picked up the use of the typewriter, on which she copied poems of the masters. At four she had received a diploma for being able to read, write and speak in Esperanto, and at the age of five she knew the famous myths of the Greeks, Romans and Vikings, and repeated the Battle Hymn of the Republic after reading it over once. At seven years she is said to have passed a "satisfactory examination in geography." She writes stories for the magazines, puts things to be learned (like the bones of the human body) into rhyme, teaches Esperanto, writes poems in French, keeps numerous pets, is fond of dramatizing, and is withal seemingly unspoiled either in her attitude toward other children or in her physical development. The features of her training that seem to me to be most conspicuous are the extraordinary amount of time, energy and money devoted by her mother to this work (something quite out of the question for the rank and file of children and mothers), the emphasis upon early beginnings, the persistent use of supervised and much elaborated forms of plays and games, and the emphasis upon talking sense and aiming directly at the best in literature and art from the outset.

Here, again, we are confronted by numerous questions, of which perhaps the most obvious is: to what extent could or should the methods employed by Mrs. Stoner be generally adopted in the home or in the classrooms of our schools? If Mrs. Stoner, instead of lecturing about her daughter, would gather together a dozen or two of ordinary everyday children whose parents were demonstrably of mediocre ability and whose intelligence was demonstrated to be that of average children, and would then, while working under everyday conditions of public school instruction, produce in these children a degree of intellectual development even 20 per cent as striking as that of her daughter, she would, in my opinion, contribute

to the cause of education, a demonstration of the most far-reaching significance.

But the supply of Sidises and Stoners is limited, that is, if we admit that they represent a quite unusual degree of endowment supplemented by a quite unusual home education. The problem that interests you schoolmen concerns children of less striking mentality but yet of endowment decidedly above the average. You could not afford to make special administrative arrangements to meet the needs of one pupil in ten thousand, or even perhaps of one pupil in fifty or a hundred. But you might afford to bring about rearrangements to meet the needs of the best five or ten or twenty pupils in a hundred.

What I have said thus far may be taken as a sort of "curtain warmer," as an appetizer to stimulate your interest in my principal theme. My desire is to interest you in the problem of the educational treatment of the many gifted children that are found in our public school classes.

How good must a child be to be termed "gifted" in our consideration of this problem? Herr Petzoldt, of Spandau, who has been most active among German schoolmen in campaigning for special classes for gifted children, defines a gifted child as one who without undue forcing and without detriment to mind or body can accomplish in one year, two years of the ordinary course of study. He estimates that 10 per cent of the school population can meet this requirement. Since the course of study is probably somewhat stiffer in the German schools of which Petzoldt speaks, we would assume that rather more than 10 per cent of American children could accomplish two years of work in one in our public schools. Evidence is at hand from various sources to confirm this assertion.

Another method of defining the gifted child is to designate the range of mental ability that would be included within the term. Thus, for instance, those who work with the Binet-Simon tests are accustomed to indicate the mentality of the child in terms of the intelligence quotient (I. Q.), or ratio of mental to life age, so computed as to rate the median, or "normal," child at 100. Investigation shows that an I. Q. of 122 and above is possessed by about five children of each 100; of 116 and above by about ten and of 110 and above by about 20 children of each hundred. The "top ten per cent" in general intelligence (who presumably are closely similar to the top ten per cent in school ability) are, then, pupils whose I. Q. is better than 115.

With these definitions before us, we can discuss more clearly the educational problems that arise; we need merely to keep in mind the kind of ability that we find in the best four pupils in an average classroom of forty pupils.

With apology for repeating a few of them, I wish now to present to you a series of special problems that seem to me to arise in our attempt to answer the general problem before us.

(1) First, what is the relative part played by heredity on the one hand and by environment on the other hand in the production of individuals of superior achievement whether this superiority be general and all round, or specific and limited to a particular talent?

It is perhaps impossible to answer a question of this sort in precise quantitative terms, but I am sure all the evidence before us shows that superior achievement demands the combination of the two factors. But because the hereditary endowment is the fundamental prerequisite, we need to locate at an early age those pupils whose original endowment of brains is of the highest order and then see to it that the educational environment of these children is arranged in the way that favors to the utmost the development of their original endowment.

(2) How early in a child's life can the possession of this superior kind of original endowment be determined?

We need further study of this question, but I am sure that we may proceed to a provisional measurement certainly as soon as the children enter the public school system.

(3) How can we discover and foster in the school superior original endowment that is specialized—that appears in musical, artistic, dramatic, literary, linguistic, mechanical, mathematical, administrative, inventive, scientific and other lines?

Psychologists have but begun to scratch the surface of this interesting problem, and further investigation is, in my way of thinking, uncommonly difficult, so that I fear that the day of vocational guidance by mental tests is not so near as many would have us believe.

(4) What sort of interrelationships—reciprocities or antagonisms—exist, or may exist, between these specialized forms of ability?

(5) Can we surely distinguish real superiority that will fulfill its promise? Especially, can we distinguish it from the sort of pseudo-superiority which is mere precocity and which eventually attains nothing more than a commonplace mediocrity?

This is perhaps the question most often asked. I am sure that we can detect by mental tests differences between the real ability that we seek and certain kinds of seeming ability that are often mistaken by parents and teachers for the genuine article. Thus, to take an instance, possession of a "sticky" memory will cause many children to achieve striking results in the direction of high marks in the classroom, but the lack of resourcefulness, initiative and capacity to meet new situations successfully that produces the mediocrity of this type of child when faced with real situations of daily life, is readily brought out by suitable mental tests.

(6) Ought gifted children to begin their training, especially their formal school training, at an earlier age than usual; or ought they, perhaps, to be held back from such work until they are, say, eight years old or more?

It is evident that the half dozen or more children to whose attainments I referred at the outset all began their formal education virtually in their babyhood. But, as I said, these are not the type of children that we must keep in our minds when we speak of gifted children in the public schools. Moreover, those who cherish a certain reluctance to the early entrance of pupils upon their school work can find numerous instances of gifted children who have begun their work late and seemingly suffered nothing thereby. Professor Terman told me recently of a California lad who went through the first three school grades in one day and finished the remainder in three and a half years! Of course, he had learned to read at home. In general, I feel that the answer to this question must be: it depends—on the qualifications of the individual child, on the possibilities for home instruction, and upon the kind of school system, particularly upon the flexibility of promotion in the school system, to which the child has access.

(7) Can the legitimate demands of the education of gifted children be met best by segregation into special sections or classes? Is there any other administrative device—like grade skipping, individual promotion, semi-annual promotion, promotion by subject—that will be better or even as efficient?

In my judgment, any one of these devices that facilitates the progress of the gifted pupil is better than none at all, but segregation is the one best device; the others are partial and makeshift substitutes for what is really needed—the assembling in one group, of pupils of like mental attainments and the application to this group of the methods of instruction and rate of progress in subject matter that is best fitted to it.

(8) Are special classes for gifted pupils more important or less important than special classes for dull and feeble-minded pupils?

I admit that from the point of view of the pupils who are left in the regular classes and also of their teachers, the taking from the classroom of the stupid pupils probably accomplishes the greater relief, though even this might be a matter of debate. But I am equally positive that from the point of view of the pupils who are removed from the regular rooms, the investment repays a thousandfold better in the special classes for the gifted.

(9) How early in the school grades can a special class for gifted children be organized to advantage?

In several cities so-called "preparatory centers" have been organized to handle pupils entering the seventh grade, usually with the idea of accomplishing three years' work in two years. The class at Urbana, which I shall describe in a moment, was composed of pupils entering the fifth and sixth grades. In one or more other cities special classes have been successful in the fourth grade. The formation of a rapid section of selected pupils has been successfully accomplished in the very first grade—witness the results obtained in New York City as described by Martha Adler in the

Journal of Educational Psychology.* In principle, I see no reason why classes such as I am advocating may not be formed at any point in the school system in which administrative conditions suggest their establishment.

(10) Ought pupils in special classes for the gifted to pursue the regular curriculum at a faster pace, or ought they to keep the general pace of the regular classes but extend their work to secure a more intensive and also a more extensive training?

We are not prepared to give a conclusive answer to this question, mainly because no one has carried on the experiment on a sufficiently elaborate scale to supply the necessary information. I am sure that if the instruction be confined to the regular material of the grade classes, then these special classes can proceed at approximately double the normal pace. But, assuming that a special class were organized in the first grade on this basis, then we would expect the pupils to complete the eight grades in four years, and it is hardly necessary to say that most schoolmen would contend vigorously that ten-year-old pupils are totally unfitted to enter upon the work of the secondary school. I am ready to admit that ten-year-old pupils probably cannot enter high schools in conjunction with other pupils of 14 years and upward and find themselves in a happy environment, but I am not at all sure that the difficulties they would encounter are primarily intellectual. I have a notion that such a class of gifted pupils as I am describing, if kept by itself, could undertake work in algebra, Latin, high-school English and the like with pretty good success. I have a suspicion that we are prone to overestimate the differences between the subject matter of the high school and that of the grades. I am inclined to think that there is nothing peculiarly different, qualitatively, between the study of these subjects and of those of the upper grades of the grammar school. I do admit, freely, that the organization and methods of instruction in the present high school are unfavorable for immature pupils. In fact, I have seen examples of the damaging effect upon pupils of the upper grammar grades of the introduction of departmentalized instruction and other features characteristic of secondary school work.

Leaving aside, then, as a debatable matter, the extent to which the taking of a faster pace through the entire elementary school might injure the mental development of gifted pupils, we may note that, since in the classes I plead for, there is bound to be much saving of time, there is at least abundant opportunity for enriching the work by extension. Here, again, we are ignorant of details. We do not know just how much more comprehensive the instruction ought to be in special classes.

(11) What physical or mental traits afford reliable criteria for distinguishing gifted children and how may we best proceed to measure these traits in selecting pupils for a gifted class in the public schools?

*Vol. 5: January, 1914. 22-28.

It was to answer this question that the General Education Board gave me in the fall of 1916 a sum of money with which I subsidized the work of some graduate students, secured the services of a research-assistant, and arranged with the Board of Education at Urbana, Illinois, for the establishment of an experimental room for gifted pupils. It is my desire to describe to you the chief conditions under which this experiment proceeded and to enumerate the chief results that we obtained.

The Leal School, in which the room was established, has a population of about 400 pupils comprising the first six grades, arranged in twelve rooms.

The room that was given us for the special class was quite ordinary and received no special equipment, save that the Venetian blinds at the northerly windows were removed, the walls repainted in lighter tones and the blackboards resurfaced to render their contents more legible. We had none of the luxuries of classroom equipment.

The teacher, who had to be secured at the twelfth hour, was well fitted in training (she was a college graduate and a graduate of a well-known normal school and had had some two or three years of teaching experience) but she was poorly fitted in personality (she was slow of speech, slow of movement, lacking in initiative and at times seemingly in information). All in all, she may be considered an average teacher; and in any event what success we achieved cannot be discounted on the plea that only a skillful teacher could have accomplished it.

It had been originally assumed that the pupils would be selected for this room by a series of mental tests instituted by the consulting psychologist. For reasons beyond our control the room actually opened in October, 1916, with a complement of pupils (15 in the fifth and 15 in the sixth grade) that had been selected by the teachers and principal of the school, mainly on the strength of their previous school marks and with some discussion of their health and with consideration of the wishes of their parents. This incident was felt to be a calamity at first, but it proved a typical "blessing in disguise," because I was able to prove that the teachers had made a number of mistakes in this selection and that these mistakes would have been avoided had the selection been conducted, as intended, by means of mental tests.

As actually assembled, these 30 pupils, who will be referred to in what follows as the Special Group or as the Special Fifth and Special Sixth, represented about one-fifth of the pupils in the grades from which they were taken. The remainder of these two grades we shall refer to as the Control Group or as the Control Fifth and the Control Sixth—using the term "control" because we aimed to apply to these pupils a considerable number of the psychological and educational tests with which we measured the abilities and the school progress of the pupils in the Special Group.

It would be impossible to take the time even to enumerate here the tests that were used for this purpose; suffice to say that some 35 psychological tests and some 20 educational tests were applied. The psychological tests included (for the Special Group) a careful Binet examination with the aid of the Stanford Revision and several tests of each of the commonly named aspects of mental activity, like memory, reasoning, attention, etc.; the educational tests were adequate to measure with precision the work of the pupils in spelling, drawing, handwriting, arithmetic and composition. In addition, we collected evidences of the ideals and ambitions of the pupils and also had their mental and moral traits rated by their teacher and three other persons who were observing them almost daily. All in all, I think it safe to assert that in few public school classes (or private school classes either) has there been gathered together so comprehensive and precise information about the mental, moral and pedagogical qualifications of every pupil.

The important outcome of the whole experiment, so far as it concerns the study of methods of *selecting* pupils for a gifted class, centers evidently on this question: to what extent did the teachers' selection justify itself in the subsequent work of the pupils, and would a selection made by means of mental tests have proved a better one?

We may begin our answer to this question by noting the outcome of the Binet examination. In the Special Fifth the I. Q. (intelligence quotient) ranged from 102 to 146, average 119; in the Special Sixth it ranged from 99 to 133, average 116. Now, as I have said before, the upper fifth of all children may be expected to attain an I. Q. of 110 or better. Since these pupils were selected by the teachers as the upper fifth of their grades, we would expect their I. Q.'s to range from 110 up; actually one-third of them have an I. Q. less than 110. Hence, either the Binet tests are not reliable indications of general intelligence or the teachers are not reliable detectors of real school ability or school ability is not closely associated with general intelligence. Presumably, the discrepancy is due in some measure to failure at each of these points, but we have evidence to show that the greatest unreliability lay in the selection made by the teachers.

To continue our answer to the question: In February, 1917, despite having started several weeks late in October, 1916, the Special Group had completed the work ordinarily covered in a school year. In June following, both grades had covered another year's work, except three or four months' work in history (which they were prevented from undertaking by circumstances beyond their control). In June, also, the Special Group was given final examinations in 6th-grade and 7th-grade subjects; nine of the Special Fifth and eight of the Special Sixth passed these examinations readily; three were absent. In the Special Fifth four, and in the Special Sixth four, failed to pass in arithmetic. Of these eight failures (and you must remember that these mean failures to accomplish two years' work

in one), it is certain that three were unjustifiable, and it is probable that another was unjustifiable. I say this with confidence, because we had in our possession elaborate records of the standing of these pupils in a variety of standardized arithmetical tests—data surely sufficient to compare favorably with the results of a single unstandardized final examination. But these are not all the facts; this final examination was marked by the superintendent of schools by the method of allowing only zero credit for problems in which the method was correct but the computation wrong, this despite the fact that that method of grading papers had never been used before in this school and was not used (I think) in grading the papers of the Control Group. (The defense seems to be that gifted pupils ought not only to learn what other pupils do, and twice as fast, but also to do it better under test.) The remaining failures, including four in language, were those of pupils whose work was poor, who never should have been placed in the Special Group, who would have been rejected by our mental test criteria and whose failure was predicted beforehand. We may conveniently summarize the matter in tabular form thus:

	Passed	Failed rightly	Failed wrongly	Abs.
Gifted by test criteria.....	16	2	3	2
Not gifted by test criteria.....	1	7	0	1

That is, of 23 pupils who would have been admitted to the Special Group by a system of mental tests, 16 passed, two were absent, two were failed doubtless with right, three were wrongly failed; on the other hand, of the 9 pupils who would not have been admitted to the Special Group by a system of mental tests, one passed, one was absent and seven were rightly failed.

I believe this outcome shows conclusively that if the pupils are selected, not on a basis of school marks and classroom impressions, but by careful determination of their intelligence with the aid of mental tests, then gifted children can accomplish the work of the fifth and sixth or the sixth and seventh grades in one year.

But this is not the end of our answer to our question. The obverse side of the argument is yet to be noted. Our mental tests applied to the Control Group revealed certain pupils that quite consistently stood high, usually higher than our average pupil in the so-called "gifted class." More specifically, we determined by our mental tests six pupils in the Control Fifth and eight in the Control Sixth that would have been selected for the gifted class had the tests been applied at the outset. Toward the end of the year we then asked the teachers of these Control Classes to name their best pupils, those that might conceivably (now that the teachers were looking at the matter in the light of the work going on in the Special Room)

have been selected for that room in the first place. The teachers then named, of their own accord, five of the six selected by the mental tests as proper material for the Special Fifth and seven of the eight selected by mental tests as proper material for the Special Sixth. Of these children, let me add, four are known to have an I. Q. over 120 and eight more probably an I. Q. over 115. Four of these pupils lost a chance to enter the Special Group simply because they had not resided long in Urbana; they could not be well enough known by the teachers; they could be, and were, made known (though too late) by the mental tests.

We also discovered by our tests in the Control Group one very extraordinary child with an I. Q. of 167 (chronological age 9 years, 10 months; mental age 16 years, 5 months). This girl had been taught at home, and on that account could not be rated by the teachers who made up the Special Group. She was transferred to the room in March, 1917, and passed her final examinations for two years' work successfully in June of that same year. Miss McCoy will publish in an early number of the *Journal of Applied Psychology* an account of this remarkable girl, whose ability, I should estimate roughly, is certainly better than 9,999 children in 10,000. It was, I feel, a rather neat demonstration of the serviceability of mental tests that we should have located this girl and saved her a year's time in the schools.

If we add together, then, our two last lines of argument, we see that teachers selected several pupils who were clearly not gifted (in the sense of being able to do two years' work in one) and that they failed to select several other pupils who were surely gifted. Both errors would have been almost completely obviated by measuring the general intelligence of our entire group at the outset. It strikes me that if the waste of time and energy in both directions—the attempt to force along in the Special Group the eight pupils wrongly included and the failure to facilitate the school progress of the ten wrongly excluded—could be capitalized in dollars and cents, it would convince almost any doubting Thomas that it would pay the schools and pay the community to apply mental tests to the selection of gifted pupils for special-class work.

Still another argument, if one is needed. We asked the teachers of the Control Group to select for us a sample group of dull and another sample group of average pupils, and these two groups we tested with special care. Without going into details as to the tests employed or the technique of interpreting the results, we may state that in the group designated as "dull" there were no superior pupils and practically none of even average intelligence. On the contrary, in the group designated as "average" (there were six of them), we found three pupils who were quite certainly of superior intelligence (they had I. Q.'s of 119, 125 and 130!). What's the conclusion from this? Is it not that, if psychological clinics, or at least "Binet testers," are needed for selecting dull and stupid children for special classes for the subnormal (as nearly all persons seem to agree), then *a fortiori*,

they are an essential prerequisite for selecting superior children for special classes for the gifted?

To the general question previously propounded—to what extent did the teachers' selection justify itself in the subsequent work of the pupils and would a selection by means of mental tests have proved a better one? the answer, I trust, has been made unequivocally. Mental tests are far more satisfactory devices for the selection of a class of gifted pupils than the judgment of the teachers as expressed by their school marks and by their general impressions.

Of the array of mental tests we employed we have selected six of the best that can be administered in 111 minutes, including time for instructions, distributing materials and the like. In two or three sessions, therefore, we can apply this combination of diagnostic group tests to any fourth, fifth, or sixth-grade class and in a short time select from the group the pupils who should be seriously considered in the formation of a class of gifted children. We would recommend that these pupils be then further examined by the Stanford Revision of the Binet tests—not so much to supply more accurate data as to their mental ability as to give the examiner an opportunity to form some acquaintance with each pupil and also to secure an index of general intelligence that may be directly compared with well known standards of mental efficiency.

(12) One more question of interest may be answered by reference to our experiment at Urbana; namely, in what way ought the teacher and the teaching, the methods of instruction—presentation of lessons, use of drills, recitations, etc.—to differ in special classes for the gifted?

Dr. T. S. Henry, now a member of the staff of your State Normal School at Kalamazoo, paid almost daily visits to the gifted class for the purpose of answering the question just raised. In closing this address, let me quote from his report the last fifteen of his eighteen conclusions and recommendations.

"4. The teacher of a special room for gifted children must possess a large fund of general information.

"5. The teacher must have had adequate foundation in the theory and practise of education.

"6. The teacher must be characterized by energy, enthusiasm and an inspiring personality.

"7. The teacher in charge of a special room should be carried along with it in its advancement, and should remain with it as long as it retains its organization.

*Probably one factor that worked to disturb the teachers' estimates was failure to recognize that on account of the university community the general level of intelligence of the pupils in this school is undoubtedly distinctly above average.

"8. The special room should be equipped with movable desks and should be well supplied with maps, charts, globes, pictures and other aids to study.

"9. In the special room, drill should be decreased by about fifty per cent.

"10. Likewise, explanation should be reduced about fifty per cent in amount and needs to be given in much less detail than to ordinary pupils.

"11. Emphasis should be placed upon the development of the pupils' initiative.

"12. Much use should be made of the 'principle of application.' In carrying out this principle," adds Dr. Henry, "pupils must be encouraged in all possible ways to make immediate and practical application of what they have learned, in the acquisition of new knowledge and in the other activities of the schoolroom. In particular, the teacher may often very advantageously make use of this principle in provision for review.

"13. Instruction should be as much as possible by broad, underlying principles, rather than by detached facts. This is an important principle in all teaching, but it can be realized to a much greater extent with bright children than with ordinary ones, and consequently needs to receive greater emphasis in their instruction.

"14. An important feature of the teacher's method is the development of a proper perspective of the material of instruction.

"15. The teacher of the special room for bright children need pay but little attention to discipline beyond seeing to it that the pupils have work enough to keep them busy.

"16. If any of the pupils in the special room seem to be developing egotistic tendencies, the teacher should apply the 'social check.'

"Contrary to the impression entertained by some, segregation of superior children does not inevitably develop in them undemocratic ideas and attitudes. Quite the opposite, in fact, there is *more* opportunity for the development of the feeling of superiority on the part of the bright child in the regular room than in the special room.

"17. Corresponding to the special adaptations of method, there should be a readjustment of emphasis in subject matter.

"18. The teacher of a special room for gifted children should be allowed wide latitude in modifying the course of study to fit the purpose of the room and the needs of the pupils."

I feel almost as if an apology were due for thus having occupied the greater portion of my hour in describing my own experimental study of this fascinating educational problem. This I have done partly because I know more about it than I do of the work elsewhere; partly because I had an unusual chance to make an intensive investigation of one or two aspects of the larger problem—a chance that the average busy superintendent is

not likely to have. There are several cities in which plans for forming sections or classes for the best pupils have been tried. I cannot here speak of these classes, except to assure you that the experiment has been uniformly successful whenever the precautions that I have enumerated have been observed.

If my presentation of the work done at Urbana stimulates your interest in this problem and especially if it encourages you to repeat the experiment in your own community, I shall congratulate myself upon this opportunity of addressing you.

CLASSICAL CONFERENCE

CAN GREEK COME BACK?

PROFESSOR WALLACE N. STEARNS, FARGO COLLEGE, NORTH DAKOTA.

A recent symposium has aroused us to the fact that the old problem of the humanities is still alive, the battle of the books still on, and the arena still occupied by widely divergent conceptions of education. With such leaders as Viscount Bryce and Ex-President Eliot on opposing sides, the prospective combatant will do well to look to his armor.

We are bound in the beginning, to clear up certain distinctions. First, the humanist is something more than a linguist. To the humanist language with dictionary and grammar is nothing more than an open door, and who spends life beneath the portal needs his attention called to the corridors and palatial halls beyond. The humanist is the man who has gleaned from the past the richest and the best of the most mature and ripest intellects. The gerund-grinder is in a class with the man whose nose is yellowed with the fumes of the test-tube to which it has grown and with all other men whose souls like hermit-crabs have grown into and become moulded by so-called specialties. Secondly, the aim to be sought is power of thought and will. Not only knowledge is desired but wisdom to use it. What is aimed at is not a race of men skilled to repeat processes already formulated but with ability to devise even better ways and means. Not only efficiency but ability! Mind may "lack that quality of imagination and insight and sympathy without which it must judge falsely and err fatally." Thirdly, while mechanical processes were simpler with the ancients, yet thought-processes of today root back into the past. It is significant that of the score of greatest literary products of the human mind not more than half-dozen can be placed this side of the beginning of the Middle Ages. Whether the mechanical devices of Egypt and Crete are known or unknown, the results achieved, whether pyramids, obelisks, jewelry or pottery, challenge our admiration. The Code of Hammurabi, a marvel of legal construction, is now traced back to Sumerian antecedents 3,000 B. C. The dim light now breaking in Mexico and Peru doubtless enters the third millenium B. C. Whichever way we turn we stand while we look, on the shoulders of the past. To dismiss the past as unworthy the study of moderns is like kicking over the ladder whereby one has just climbed, or like the foolish carpenter who sawed the board between himself and the barn.

It is our belief that we have gone to seed in the matter of freedom of electives. The old iron-clad system died the death of a tyrant, but we have yet to show that the elective system can bring better results than did the

old. Chastened by its experience of exile we believe the old method of prescribed work on the group plan through the Sophomore year—varied for those preparing for different callings—will ultimately be restored. It is not a question of what the student wants but of what he needs. Better than the callow youth himself can know, the wise teacher with experience behind him knows his students' minds and the manner of life they are choosing.

But so far has the power of the ancient Trivium declined, and so far has Greek fallen from its high estate as chiefest in that Trivium, that Greek students have come to be *aves raræ* even in our cultural colleges. Three years ago a certain high school in North Dakota had a single Greek pupil—the butt of sinners and a subject of prayer for the pious. Our high schools are filling up with Greekless teachers, our Latin teachers begin work with no Greek background, and incoming college freshmen have neither desire nor occasion for the study of Greek—language or literature.

That things can always be thus is scarcely credible. The longest lane turns; the darkest night gives place to day; sooner or later there is bound to be a renaissance. Striking personalities, shift in public sentiment, sometimes explicable and sometimes not, some chance that sets up 'a new goal for men's likes and dislikes, the stimulation that must finally come from the labors of devoted followers whom obscurity cannot daunt, the dissemination of new ideals such as occurred in Italy in the XVth century—all these factors, or any of them, may serve to work a change. But a renaissance, if it is to come now in the study of Greek must subscribe to certain fundamentals, must meet certain public demands, must put itself in the way of accomplishment.

We are, the best of us, held by glamor, power and ostentation. The grip of modern tongues and letters is not wholly explained on scholarly grounds. Prestige in the past has not been wholly due to interest pure and undefiled or to intellectual pre-eminence. It has been the force of France, of Germany, of Italy bidding for the interest of thousands of tourists that has given these tongues such prominence in our educational life. Greece enslaved and fallen was quite forgotten.

Yet, as Sir Henry Maine has said, no nation has produced aught of spiritual worth but owes a debt to Greece. And, further, how often has it been the Greeks that saved the world from utter overthrow! It was Greece that met the tide of Persian invasion and saved Europe from being swamped by Asiatic civilization before definite ideals had been attained. It was Greece that though captive leavened Roman life and moulded it with her culture. Greece saved the West from Vandal hordes throughout some fifteen centuries, and only when weakened by insidious blows from western hands, torn by factions within, and overwhelmed by the hordes of Islam did Greece at last yield. Even then her scholars, refugees in foreign lands,

found means to continue their country's mission, and in Italy, France, Germany, and, later, in England dispelled darkness and gave new light. Greek has never ceased to be spoken or written. Even Turk brutality systematically carried out failed to quench the Greek spirit, and today, stronger and greater, it looks expectant to the time when men again shall answer to the call of the Muse.

There can be nothing more evident than the increasing significance of the Greek people. The revolution of 1829 did more than change the political complexion of Europe. It brought once more to our notice the fact of Hellas. Prior to 1864 Greece comprised 18,341 square miles. By 1881, through the cession of the Aegean Islands from England, this had been increased to 19,381. By 1897, this area had become 24,440 square miles. In the Balkan struggle of 1908 Greece shared the burden and the prizes of war. Today Greece has 42,000 square miles, just above the area of the state of Ohio. Rugged and diversified the country is, with deeply indented coastline; it is said that every Greek thus lives within ten miles of a mountain and forty miles of the sea. Throughout every age these supreme factors of nature have left an indelible stamp on Greek life and thought.

In classic days the Greeks possibly numbered at the maximum estimate about 10,000,000 souls. Today the Greeks throughout Greece and the Levant are estimated as high as 12,000,000. In 1896 modern Greece numbered 2,433,806. Out of this must be taken the one considerable city, Athens, with its 111,486 and Piraeus with an additional 43,848, leaving an average per square mile of something like fifty-five. Emigration has constantly lowered the population, especially the male portion, yet by 1907 the number had risen to 2,631,952 with 241,068 in Athens and Piraeus. Today the population aggregates 4,363,000.

Commercially Greece has come to hold no mean place. Sixteen chief listed imports totalled in 1905 over \$19,000,000, and ten chief listed exports for that same year aggregated more than \$21,000,000. As far back as 1898 mining statistics show an output in value of some \$6,000,000. Today more than a thousand vessels aggregating more than 300,000 tons are laying the foundations for a wide-spread commerce.

Experience has made the Greek a fighter, whether he will or no. The army in 1912 was a fighting machine of approximately 130,000 men and in the present crisis totals a war-strength of a half-million men. With a respectable showing of battleships, destroyers, and miscellaneous craft—more than we could boast in the Spanish war—Greece again plays a hand in the naval game of the Mediterranean.

Diplomacy and intrigue had nearly accomplished their work, but plucked like a brand from the burning these people are again arming for battle. The struggles of Venizelos and his compatriots have not been in vain. If the

Allies win, as they must and will, we may look to see the Greeks take once more an honorable place among the nations of the world.

But her greatest achievements are of peace. Depraved and demoralized by their Turkish bondage, modern Greeks have created every means for their development. Two chief interests of the last half century have been agriculture and education. Spurred on by the achievements of his ancestors, the Greek of today seeks by every means to build up his country's schools. Illiterate though he may be himself, the Greek covets opportunity for his children. There is much yet to be accomplished. Poverty, squalor, ignorance and a host of ills yet abide. But it must be remembered that a single generation covers the history of railways in that country, that factories are still in the small proprietary stage, and that it is but little more than three-quarters of a century since the throwing off of a slavery as blighting as ever was African bondage. Yet the statistics for 1905 return 2,604 primary schools, 306 secondary schools, thirty-nine high schools, a university, many private schools, besides schools for agriculture, mechanics, military and naval training, commerce, law, theology, and the like. Girls' schools also exist and women rank with their sisters elsewhere in Europe. And there is practically but one large city and ten others ranging from 10,000 to 40,000. Throughout the rural districts illiteracy stands at only 30 per cent and in the towns at 15 per cent.

The mention of agricultural training reminds us that Greece is 80 per cent or more agricultural. The instincts of the centuries passed under Turkish rule still prompts the grouping of country homes into communities, but the life of the people is overwhelmingly rural. Still only 21 per cent of the land is under the plow, and 59 per cent is not cultivated at all.

Already a considerable variety of cereals and fruits are produced, the annual export of raisins alone amounting to 170,000 tons, a value of \$8,000,000. Greece needs more agricultural colleges and experiment stations; needs to be taught the care and the value of the soil; and needs to be won from politics—bane of Balkan peoples—to the dignity of labor and to the beauty of the worth of rural life and pursuits. It is a little prosaic to think of Greeks contending with the harvest on fields where their ancestors gripped with the Persians, or to think of the reaper supplanting the chariots of war. Yet this is bound to be. The glory that was Greece is gone: it is another glory—though no less a glory—that is to come. The work of education has in reality just begun.

Recent additions of territory afford outlet for pent-up energies and, it is to be hoped, relief for too prevalent jealousy of others' success. In every considerable city of Europe and on other continents as well, notably at Alexandria, Paris, London, Petrograd and Vienna, Constantinople, even New York and Chicago, Greek thrift and shrewdness have laid up store. Not the least encouraging is the patriotic munificence that prompts even Greeks resident in other lands to remember the homeland. The finest

buildings in Athens, as the University, the Museum, Academy of Sciences, Zappeion, prisons, hospitals, stadiums and colleges, are monuments to this sentiment, "Once a Greek, always a Greek." A case on record is of a Greek barber dying in New York who left all he had, \$150, for an educational fund for his country. There is a spirit of pride in their traditions, even among the humble peasantry who come to America seeking labor, and a successful life contemplates a happy close amid the blessed sights and memories of Hellas. What has been so well begun cannot fail of being well done.

It may be that we have approached the study of Greek from the wrong angle. It was the captain of an American vessel that first saluted the new Greek flag as it was borne into a harbor filled with shipping from all nations. That was modern enough. But several years ago it was noteworthy an American Academic Society came within a single vote of adopting the modern Greek method of pronouncing the language. Only occasionally does a college catalog show that the regnant professor follows in this line.

It is almost four hundred years now since Erasmus impressed upon classical scholarship a system of pronunciation mediaeval in spirit if not quite in date. For four centuries this system has been in honor, though its chief proof was the fact that it could not be disproved. And the symbol has been true to substance. Instead of the living expression of a living people Greek has degenerated in most colleges to a dull rendering in stolid prose. The old fire and spirit have been lost sight of. Greek has become too much a mere discipline, a drudgery, a health exercise for the intellect. Textbooks have been built upon the same plan. Rules and paradigms and exceptions have been dealt out for weary months before the student had a suspicion that the temple of Greek was anything more than a stooping passage-way or a blind alley. Sixty to eighty lessons was the measure of the standard beginning book. Let us learn wisdom of the teacher of modern languages. French, German, Spanish, Italian are a means to an end. They are living, vibrant tongues, the approach to great literatures as well as the media of living peoples. Let us drop linguistics for classical philology in the true sense of that term; let us take the modern approach to this language that never has ceased to be spoken and written, the possession of a people that never has been dead but is still alive; let us note that we are meeting a people that after showing a tenacity of life equalled only by the Jews have reasserted themselves and re-established themselves in their ancient seats and made themselves a growing factor in the Mediterranean world; let us look not only backward but forward to a Greece that is yet to be.

Thus we have hinted at a possible way to interest once more the popular mind in Greek culture. First the so-called practical mind must be attracted to Greek life and achievements as they now stand. The next step is to consider the persistence of the Greek genius, which neither war nor

famine, fire, pestilence, persecution, nor slavery could daunt, but which again and again issued from its hiding-place to fill its appointed place in the world. The study of the language must not stop with the jingle of paradigms and syntax, but press on to early readings and appreciations of the literature as expressing the soul of the people. Let him who wills, go on to the ripening of details, the erudition of linguistics, but for the average student there cannot be other help or interest than the power of good literature from whatever source. Thus the interest in the present may grow to a desire to know more of the past history and life that has led up to so worthy a present.

There are, further, many by-products worthy the student's consideration. The study of Athenian democracy, or disasters due to the decline of it, and the many causes that led to its failure, are of compelling interest to the citizen of today. After about every blunder conceivable Greek politics is rich in the lessons of experience. One of the fundamental principles of our Democracy is, that it stands to protect the rights of a law-abiding minority against a triumphant and despotic majority. That it is only a step from Democracy to anarchy is another principle to appear.

To the statesman the study of individualism, its philosophy, its dangers and checks, and the perils sure to follow upon abnormal development is of vital interest. And the genesis of art, letters, and speculation as the expression of Greek life, and of their influence in turn upon that life constitute a boundless field of inquiry.

Likewise the legal and military antiquities of this country have their interest for a considerable number, and, if we are to judge from the forthcoming manuals, the new field of agricultural history is not left here to a barren field.

Our present system is an acute case of *hysteron-proteron*. Let us in conclusion turn about to something like the following order: Greek and the Greeks, their place and potency in the world today; the social, political, commercial, and literary antecedents of the Greeks of today—in a word, Greek culture and literature, classical civilization and linguistics; finally, for the saints made perfect, Greek life and thought as such. If we may compare such a course of study to a continental train, there will be a continual dropping off of passengers along the line, but there will develop a goodly number of through travelers to the end of the route. The practical things that appeal to common interest will compel attention to those features of the study that command attention not because of their promise of quick returns, but because of their eternal and, although more remote, no less certain spiritual values.

LATIN FROM THE VIEWPOINT OF THE INSPECTOR

PROFESSOR J. B. EDMONSON, UNIVERSITY OF MICHIGAN

I am glad to report that Latin is given a very favorable place in the program of studies in the typical Michigan high school. In fact, it is difficult to find an accredited secondary school that does not offer at least two units in Latin, and many offer a four unit course. The number of students electing Latin is relatively large and is increasing in many of our schools. The talk, therefore, in some quarters that Latin is on the decline is not well-founded when reference is made to the present conditions in Michigan high schools.

I am especially interested in the place of Latin in the program of studies in the small high school. It is my opinion that Latin is the best foreign language for the small school to offer when the limitations on the program of studies are such as to force a choice. I base this opinion on the following facts:

I find that Latin satisfies more of the vocational needs represented in the student body of the typical high school than does any other foreign language. For the student planning to enter college, the Latin satisfies the usual entrance requirement in the languages. For the student intending to specialize in English or a modern language a knowledge of Latin is imperative. For the student expecting to enter the ministry, nursing, law, medicine, dentistry or pharmacy, a certain minimum of Latin is usually a definite requirement.

I very frequently tell Boards of Education that are interested in organizing a so-called practical program of studies that they must certainly give Latin a place because of its large pre-vocational or pre-professional value, and I have yet to find a Board that has refused to admit the truth of this claim.

I also advise the choice of Latin in the small school because of the fact that well-trained teachers are easier to secure for Latin than for the other languages, and in the end the teacher is of more importance than the content of the course. I might also add that the unsolved problems for the small school of aim, method and content are not as perplexing in Latin as in certain other studies. To mention the various values of Latin that could be classified under such headings as cultural and disciplinary would be to repeat much that is already thoroughly familiar to all of you.

I have been thinking very much of late about this question. Will Latin continue to hold its present very favorable place in the Michigan schools? I have reached the conclusion that the answer depends on the type of replies given by Latin teachers to these two questions:

First: Is Latin a profitable subject of study for all high school students?

Second: Is it part of the task of the Latin teacher to undertake to convince pupils that Latin is an interesting and profitable subject for study?

I am convinced that an unequivocal answer to these questions in the affirmative is absolutely essential to the best interests of the work in Latin in the Michigan public schools.

On one day last February I had occasion to inspect a high school where the teacher of Latin answered both of the above questions in the negative, and I found just what you would expect—a very small enrollment in Latin and a thorough dislike for its study. The next day I visited a teacher, who told me that she gave the entire first week of the semester to the work of interesting the pupils in the study of Latin, and spent much of the first month in getting the pupils well started in right habits of study. The idea of Latin for a select few of the “better students” had no place in the thinking of this teacher. In this latter school Latin was one of the most popular and profitable courses offered. Now, it is my opinion, based on many conferences with school authorities, that Latin can be made equally attractive in any school where the teacher is optimistic concerning the possibilities of its study.

I hope none of you will get the notion that I believe in sacrificing standards and quality in order to attract numbers. I do not believe in such a practice in any field of school work. I am urging rather that you put Latin in the right light and adapt your aims, requirements and methods to the preparation and ability of the high school students. If as teachers you do this, Latin will continue to hold its present favorable place in our Michigan schools.

THE CLASSICS AND DEMOCRACY

PROFESSOR A. G. CANFIELD, UNIVERSITY OF MICHIGAN

May I venture, as a modern language man, whose interests are at one with those of you teachers of the classics so far as our educational work is concerned, to say a few words to suggest the interpretation of the facts just presented¹ for our democratic American education?

It is not at all surprising that these German champions of liberty, defenders of the “lost cause” of 1848, were men nurtured in the classics. For it is precisely the central and characteristic feature of classical culture to develop the sense of the dignity, capacity and value of the human spirit, the conviction of the consequent necessity of individual liberty, and the respect for all that goes to enrich the idea of humanity. Its motto has ever been the line of Terence: *Homo sum: humani nihil a me alienum puto*. No word has been found to name more fitly the movement which its revival

created in the modern world than "humanism." Its profound concern is the free play of the human individual, the realization of his various possibilities, the attainment of the full measure of his manhood, and the conservation for the individual life of those spiritual values upon which the long experience of mankind has set the seal of permanence and supremacy.

Now our time, thanks largely to that country with which we are at war, has seen another and quite different concern gaining the ascendancy—the concern for efficiency. Efficiency looks on the individual as a factor of production, as a subject for organization, as a cog in a vast machine. It deals primarily with the material. Its end is power. It is the natural concern of autocracy. But democracy does not aim at power. When challenged, indeed, as it is now, to desperate self-defense, it must for the moment make the necessary sacrifices to attain it and become as efficient as its enemy. But efficiency can never be its primary and guiding concern. Should it ever be so with our country, we should cease to be a democracy. For democracy, too, is primarily concerned with the free play of the individual, the development of men and women. Not power, but individual opportunity, freedom to make the most of oneself, equality of privilege, justice between man and man, are its watchwords. It is more concerned that the awkward rustic should unfold the great personality of an Abraham Lincoln than that he should become the most expert and scientific rail-splitter in the world.

And education in a democracy must be inspired by this fundamental conception. It must not sacrifice the development of the human spirit to the creation of an industrial tool. We must suspect that between *Realschule* and *Realpolitik* there is a certain connection.

SOCIALIZING LATIN

MISS FLORA I. MACKENZIE, BATTLE CREEK HIGH SCHOOL

The problem had long been vexing my mind as to how the Latin department could readjust itself or branch out, and present a pleasing and attractive side that would appeal to the high school pupils, and make them want to take Latin up, and after once taking it up, to continue in it the four years. Our school was suffering—as is every school, I imagine—from the so-called practical studies: manual training and sewing, for example, that brought forth definite, tangible fruits of their art and threw a shadow over our cultural values attained.

²In the paper by Professor W. W. Florer, on "The Classics and the European Revolution of 1848."

At the State Teachers' Convention I slipped into an English conference, where a speaker was just declaring, "Our English must be made to suit modern demands. To get best results we must treat our subject from the standpoint of the class as a social group. English must be thoroughly socialized." And I thought to myself, that is the very thing we must do for our Latin, we must make it meet modern demands and become thoroughly socialized.

But how could it be done? The leaven hidden in the meal began to ferment. It was the era of exhibits, and after returning to Battle Creek, one of our domestic art instructors remarked to me, "Well, you can be thankful there is nothing in your department to *exhibit*." Her remark pricked deeper than she thought, and we resolved that we'd have an exhibit, and we'd make it an exhibit worthy the name.

Using Miss Sabin's book as a suggestor, we set to work, and it was more of a marvel to me every day to see the way the pupils took up the task and how eager they were to help. Dark gray charts were obtained for mounting our exhibits, which were made more durable by black cloth binding an inch wide around the edges. The lettering was done by students who showed some ability along that line; the mounting was done by others, and resulted finally in about forty very attractive charts.

These included the seals of the various States, with the mottoes translated into English;

A chart of birds with translation of names;

Lists of English words in common use, with derivation from Latin;

Advertisements, such as the Atlas Cement, Corona Typewriter, Vulcanizing supplies for automobiles, the Goodyear Tire with its Mercury wing, and others too numerous to mention;

A physiology chart with lacrymal glands, pericardium, and various muscles and glands, with Latin and Greek derivation explained;

of our common flowers, *e. g.*, sunflower, hyacinth, etc., and a short account

Various coins, with mottoes;

One of the most beautiful exhibits contained mounted pictures of some

Modern inventions, such as interurban, bicycles, hydroaeroplanes, etc.

of the origin below it; the common stars and the star groups, with accounts

Law phrases;

of each; and so on indefinitely.

The charts were suspended by a heavy cord from the moulding of the library, where our exhibit was given, and hung at the level of the eye, so there was no straining of the neck or eyes to read them. Collections of postcards of views in and about Rome and Pompeii were mounted, and proved very interesting, also postcards of gods and goddesses in marble and bronze, and famous pictures bearing on Roman life.

The long library tables were converted into display mediums, on which were such things as a peasant's hut made of plaster of Paris and covered

with a realistic thatched roof; a Roman trireme; Roman scroll; writing tablet covered with wax, and stilus for writing; various models of weapons and standards; and in one corner, on a sand table, several boys who were studying Caesar had modeled an actual battle and the storming of a walled town.

A medieval walled town, to show the formation of the wall, occupied one side, and evergreens indicated the wooded slopes wherein mounted officers lurked; these were made from light cardboard, and modeled after the warriors on the color plates of their Caesar books, with realistic coloring, and standards to make them stand upright. There was a testudo also, and various legionary soldiers, made as the mounted officers above. There were mounted warriors and machines for hurling stones; great towers, and scaling ladders, while gallant defenders of the town manned the walls and fought off the assailants. Caesar's bridge was also there.

Boys and girls dressed in togas took charge of the various exhibits, and explained them to visitors. Through the courtesy of the Latin department of the University, we were able to have an exhibit of various vases and other models taken from the University collection. An account of each was furnished, so that one lad was able to explain this exhibit intelligently to the visiting public. There was also a model of a Roman house, so realistic that one could almost hear the echo of the *cave canem* at the threshold. Various small pieces of statuary were also on exhibition, being loaned by interested people about town, and pictures and Roman lamps, and candlesticks, too.

The exhibit was held three afternoons, and the general public availed itself of the opportunity to see what they could find in our department of interest to them. It was a matter of great surprise to see the mixed assembly which resulted. The patron whom I liked to see come was the man or woman who came frankly up to me at the door and said, "Now, Miss Mackenzie, I have never had a word of Latin, and know nothing whatever about your subject. Will you please take me around and show me just what you mean by this exhibit?"

In every case, before the rounds had been made, that person was not only interested, but keenly alive to the bearing of this so-called dead language on modern times.

The exhibit served to waken just the kind of interest we had hoped for, and the boys in particular began to catch the vision of its wonderful possibilities.

The following year an exhibit seemed hardly capable of meeting the general demand for something by the Latin department. After considerable thought, a play was decided on, and the "Saccus Malorum," by Schlicher, was the one chosen. Our principal seemed skeptical about getting the pupils to learn the parts in Latin, but not one person refused when asked to take a certain part. Each person was drilled separately, each speech

was translated by him, and the speeches preceding and following, so that he would get the general meaning. Then each speech was learned in Latin, with the proper English expression of tone and voice. At first this was hard to attain, but when it was suggested that each person must make his speech and action so accord that the audience could follow the play, just as movie actors had to do, they caught the idea, and from then on it was *facillimum factu*.

The costumes were regulation togas, made by the pupils themselves, and the sandals and ornaments were made according to Roman pictures studied for that purpose.

Some good amateur talent was displayed, and when the play was given, one afternoon in the high school auditorium, we had a packed house. So general was the demand by parents, who could not get to see the play in the afternoon, that it was repeated a couple of weeks later at an evening performance, for the modest price of ten cents, and again we had a large crowd.

This year the problem arose again as to what to give, and the much more pretentious play of "Dido, the Phoenician Queen," by Dr. Miller, of the University of Chicago, was decided upon.

The main characters were taken by the Virgil class, the attendants of the Queen and Aeneas' band by the underclassmen. The story was read by Virgil himself, in a toga, from a regular Roman scroll. Dr. Miller's play is in English, and is a splendid translation of the Fourth Book of the Aeneid; but it proved too long for the pupils to learn in the limited time, so we changed it by having Virgil read the story and the pupils acting it out in pantomime. The play was given Monday night this week, and the pupils did their parts unusually well and displayed their talent to a crowded house. There was a slight drawback this year, however, as our costumes ordered did not arrive, and Monday afternoon all the players fell to and made up the frocks for the company. When this was explained to the audience, they were very lenient and even the sight of the sailors in too modern togs did not destroy their enthusiasm. The way the actors rose to meet the difficulty and overcome it was very praiseworthy. The amount left, after our expenses, which will be very light, will go to the Y. M. C. A. War Service Fund.

Truly, this war-like year has brought the boy student of Caesar into his own. With wars and fresh rumors of wars, and modern tactics common subjects of conversation, Caesar is no longer a bug-bear. Recently in one of my Caesar classes we were reading of Galba, the young lieutenant, sent by Caesar to open up the pass through the Alps, leaving it to his own judgment whether he should spend the winter there or not. The town Octodurus, with its geography and physical characteristics, was studied. The disposition of the two halves of the town, then the demand for grain, and information the next morning that the enemy had evacuated their half of town, the

startling news that the heights were held by the army and Galba's forces were in a trap, all were noted. The class was divided into two opposing factions, the pro-Galbaites and the "cons," and if ever a general and his actions were examined, Galba was certainly "buffeted about."

The Italian battle front has attained a new significance, as well as the campaigns in Gaul, and from my two large Caesar classes not a boy has dropped out. This does not mean that the drill on forms has relaxed, but there is the added zest of knowing there is a problem to face and seeing how each leader acts under the circumstances.

Military weapons have also come in for their share as interest-provoking instruments, and when a new weapon is mentioned as used by Caesar, the boys search out its descendant and use in modern warfare. Caesar, from being one of the hardest years to teach, has become easier, if not the easiest, and personally there is nothing I like better to develop than its campaigns, and see the pupils get not only constructions, but comprehensive views of the definite campaigns, and what each accomplished.

The war has driven many refugees to our shores, and fortunately for us this year, we have a Bulgarian boy in a Caesar class who lived not more than twenty miles from Saloniki and has a number of postcards of his country, showing Roman remains. Recently he consented to tell the class of his country, and the Roman architecture and coins and vases found near his home, among which he played and hunted for buried treasure. He also is an adept in the use of the four-foot sling and demonstrated his ability for the class.

Apropos of the war-times, there has recently been formed by the boys of our high school a Junior Council of National Defense, which has proved a very active factor in the campaigns, such as Thrift Stamp sale, Junior Red Cross drive, etc., and boys from the Latin department have been the moving spirits in the council and its activities.

Recently the little boy in my house, eleven years of age, entered the Junior High School and started Latin. His people were in despair, and the lad himself thoroughly discouraged because it proved so hard for him. Being called into council, I tested him out to find where the trouble lay, and immediately discovered that the lad had not had any technical English grammar. He didn't know a noun from a verb, and an object was an unknown thing; while the copula and its following construction was as Greek to him. He has always been ranked as a capable student, so I am not taking any exceptional case; and this is the same difficulty all school teachers have to meet.

A new first-year Latin book came recently to my desk for perusal, called the "Beginning Latin Book," by Albert S. Perkins, of Boston, Mass. It suggested a very extensive system of derivative note-books. I have not looked it over very carefully yet, but it contains the idea we have been working on in our Latin department in Battle Creek along this line. After

such words as *trans*, *sub*, *inter*, *per*, etc., have been developed and meaning brought out, the pupil begins a hunt for words in his reading, either of magazines or books or newspapers, having these prefixes, and the study has proved not only interesting but very instructive, and on their recent examination one question was to break up the words into their various parts, give Latin meaning of the parts, and then putting them together, give the English meaning: subjugate, subterranean, intramural, extramural, submarine, etc.

Then they keep a list of words they have found interesting in their reading from the standpoint of Latin, and we have come across some very interesting words and have increased our vocabularies accordingly. A few minutes, ten at the outside, devoted to this on Friday, or some day when we have finished our assigned work, serves to keep them interested, actively and profitably.

These are a few of the more potent factors the Latin department of the Battle Creek High School has emphasized to socialize Latin, in its effort to assist the active mind, the discerning mind, that can grasp and assimilate its forms, to see that it is actually attaining definite results from the study. Meantime, the class has unconsciously become a social center and our aim has been accomplished.

AIMS AND PROBLEMS OF JUNIOR HIGH SCHOOL LATIN

PROFESSOR BENJAMIN L. D'OOGHE, STATE NORMAL COLLEGE

The subject of this discussion is significant of an important change in our school organization and of our school curriculum. A few years ago there were no Junior High Schools, and the teaching of Latin in the grades was exceedingly rare. The new organization calls for a new curriculum, and we, as teachers of Latin, should see to it that Latin is included. Our success in this effort will depend on our success in making it clear to the public that Latin may be so taught as to be of great value to the pupil, even if he does not carry it beyond the Junior High School.

The question then is what does Junior Latin aim to accomplish and what is its purpose. It has three principal aims or purposes.

First, it may be made a most efficient means of teaching the fundamentals of English grammar. Formal grammar is almost extinct in the lower schools, and many pupils now enter the high school quite innocent of a knowledge of even the parts of speech. There is no better key to the abstract relationships of the English sentence than their concrete illustration in Latin.

Second, Latin, as the largest component of the English language, illumines and enlarges the English vocabulary. With due attention paid to

derivation, no study can be of as much practical help to the mastery of English, and that is just where the average pupil is weakest at this stage of his progress.

Third, Latin supplies a discipline of vital importance to the immature mind. Children entering the seventh grade are at just the age when they need a strong intellectual tonic, something to steady them, to make them accurate, keen and logical in their thinking and expression. It is time for them to begin to put away childish things.

These are the principal aims of Junior Latin and justify its inclusion in the curriculum, for these aims will be achieved to an appreciable extent even if the pupil pursues the subject only a single year.

That Junior Latin does fulfill its purpose is shown by the following amusing testimony from an eighth grade pupil in Grand Rapids, published by Miss Susan Jones in the March number of the *Classical Journal*: "Latin is a subject I do not care about. To me it is like medicine. I do not like it, but it does help me in my other studies, and I think that every child that has a chance to take Latin ought to."

Questions and problems that attend the introduction of Latin into the Junior High School are chiefly the following:

1. When shall Latin be begun? The right time to begin is in 7—1, and it should be taught in connection with English, keeping one step in advance of the latter. Latin is more logical and regular than English, and is concrete, where English is abstract.

2. How much work should be covered during the first two years of the course? The work covered should be that generally done in the first year of the usual four-year high school course.

3. Can English composition and reading be properly cared for in the Latin-English class? Probably not. It is better to provide for this work in another class.

4. What text books are available? I know of no text book that is exactly fitted for this work, but any good beginner's book can be adapted to it by a skillful teacher by the addition of many more easy sentences and stories, by the frequent use of oral Latin, and by extensive but simple word derivation. Teachers will find many useful suggestions in the syllabus, "Latin—The First Two Years," recently published at Albany by the New York Department of Public Instruction.

5. Shall all or only a part of the pupils take Latin? Pupils of average ability should be encouraged to take Latin, but the poorer ones should be weeded out.

A word should be added about methods. Children beginning Latin need much guidance and there should be much supervised study. Interest may be quickened, too, by the singing of Latin songs, the playing of Latin games, and by a liberal use of pictures illustrative of ancient life, history, and mythology. These means are all legitimate, but too much emphasis

should not be put upon them. Let us not forget that Latin is interesting *per se*. While it is hard, it engages the pupil's mind without confusing it and discouraging it, and he is naturally inclined to work hard on it.

Finally, we should be alive to the fact that the present eclipse of German has brought us a golden opportunity for greatly increasing the enrollment in Latin. Neither French nor Spanish is likely to take the place of German, at least not immediately, owing to the lack of teachers of those languages. Now is the time to urge the superior advantages of Latin, and the place to begin it is in the Junior High School.

LATIN IN JUNIOR HIGH SCHOOLS

MISS LAURA N. WILSON

To include Latin among the subjects offered in the seventh and eighth grades of Junior High Schools is wholly in keeping with the idea of giving the exceptional child added opportunities. The credit secured from such work may be applied either to shorten the time needed to complete his high school course, or to enable him to take other work. Suppose, even, that the pupil who has studied Latin in these grades does not care to continue the work any farther, or has not done work of a quality to entitle him to high school credit; he is in no respect behind his companions who did not take Latin, and the chances are that the same pupil, beginning Latin in the ninth grade would have dropped it at the end of the first semester. For him it has, then, been a saving of time.

Latin in the grades is best taught in connection with the English work. To do this successfully, however, provision should be made for the composition work, spelling and reading to be given, apart from the period devoted to Latin and English grammar. To attempt all this work in the usual five periods a week hampers the class.

The Latin-English work is designed for a select group. If a pupil has all he can do to carry the regular work of his grade, either because of his own physical condition or mental ability, or for other reasons, it would be unwise for him to assume added work at this time. I do not mean by this that the study of Latin in the high school is only for the favored few. The pupil who elects Latin in the seventh grade should understand that he will have to do more work than those who do not, and having made his choice, should be expected to continue, in normal cases, for at least one year.

I have already hinted at the plan of the work. Begun along with English grammar in the seventh grade the Latin continues for two years, at the

end of which pupils who have made satisfactory progress should be ready to enter the second year high school class. Those who are not so well prepared should enter the second semester of the first year. Much of the work, noun constructions, for example, can be taught in both languages in very little more time than is usually devoted to it in one, and with this arrangement we ought no longer to hear the familiar complaint about pupils having no knowledge of the fundamental principles of English grammar.

The methods of teaching Latin-English grammar are merely those of the teacher who thoroughly adapts his work to his class. The matter of a text does present difficulties, for the ordinary high school text is unsuitable. The text for the grades should contain the material needed for both English and Latin and should present a large amount of easy material for reading. In the absence of a suitable text, the demands upon the teacher's time and ingenuity are very great, but there is always the inspiration of the keenest interest and delight on the part of the class. There is no room for doubt that the children enjoy the work.

MODERN LANGUAGE CONFERENCE

GERMAN TEACHING IN OUR SCHOOLS DURING AND AFTER THE WAR

PROFEESSOR J. W. SCHOLL, UNIVERSITY OF MICHIGAN.

When I was asked to discuss the teaching of German in our schools during and after the war, the question seemed to be left open, whether it might not be desirable to make a distinction in our practice between the present time and the peace-time to come in the indefinite future.

I myself see no difference of principle involved, and shall not make any distinction. What is desirable, permissible, useful or tolerable in teaching German is as much so now as it will be in any thinkable future peace-times, and will be no more so in the future than now. This is not a time of watchful waiting for teachers of German, to be passed as comfortably and silently as possible, and then followed by a resumption of former activities. To think such a thing is to hug a delusion. This is a time of crisis. A great gulf is fixed between the past and the future of German teaching. It is no use to parade any claims of a rosy future for it, neither in order to induce students to prepare for teaching positions, nor to console teachers who find their life work dissolving under their hands. No man in his sober senses will be hardy enough as a prophet to declare that more German will be taught in America very soon than was ever taught before. No man with a clear vision of the conflict this nation is in will be stupid enough to talk of Germany forcing very soon a favorable peace, which will stimulate at once a renewed interest in German and restore it to its recent prominence or raise it to an even greater predominance as a culture-study. Such opinions, and they are not merely invented by me for purposes of illustration, merely show how easy it is to be a spectator of events without comprehending them at all.

One would think that the events themselves were eloquent enough. The right of German to exist anywhere as a discipline in our schools, from the grades to the universities, is being sharply challenged. The answer given at present is fairly clear.

It has no right to a place in the grade schools. The people all over the country recognize that the grade schools are the instrument for the unification and solidification of our national life, for the handing on of the legacy of national and moral ideals. They must be a national *one-language* institution. It makes no difference that educators have discovered that children learn languages easier at the early age involved in these schools. Professionally they will frequently insist upon the introduction of foreign-

language study at a very elementary stage, but the advantage supposed to be gained by a few, is a mere bagatelle beside the loss, cost and damage involved in the dislocation of our schools as the instruments of nationalization.

It has long been apparent that the introduction of German into the public grade schools has not been insisted upon by English-speaking parents, in order that their children might master the foreign tongue at a time when their powers are peculiarly adapted to linguistic acquirements, and their speech organs plastic enough to compass the difficulties of the finer shades of the spoken idiom. In fact, the demand has regularly come from German parents, who want their children to continue the use of German at home, and who are made to think they have the right to dictate because they pay the taxes, and because our school system is so largely local in its governmental control. Or it has come from German-speaking clergy and their flocks, or German newspaper editors, or German societies, all agencies interested in maintaining German as the language of the home and the compact community. It has been largely a stimulated demand in these latter days.

Let me now add two things which are typical, and I believe self-explanatory: (1) Professor Göbel has expressed a view held by many, namely, "The mere teaching of the German language to a child is sufficient to prevent its Americanization." He means, of course, that the child is to be taught German, so that it remains his mother tongue; that German is taught with all the accompaniments of German Kultur, with "Deutschland über Alles" at the center and the glory of the present empire at the periphery, as had become the vogue in too many places in the recent past. And Göbel was probably quite correct in his estimate of the effect of such teaching. Its tendency lay in that direction.

The second thing is this: Up to the present year the children of Milwaukee, whether of English-speaking parentage or of any other foreign parentage than German, were all required to study German in the grade schools, unless the parents sent in a written request to have their child taught English. Think of that! An English-speaking American parent in an American city had to make written request of the Superintendent of Schools to have his child taught his mother tongue in an American school! And the excuse given was: The parents do not understand English, and it would be a very bad thing to get the children out of touch with their parents. It might have occurred to the Superintendent of Schools of that city, if he had been anyone else than an officer of the German National Alliance, that an effort to teach the parents English might have been an acceptable solution.

But the people of Milwaukee woke up. And the people of the whole country are awake, or rapidly awaking to the real enormity of such conditions. They see that American tolerance has been heretofore the mother of great abuses, has led to a failure to appreciate the real function of our

schools in our national life, and has been up to now largely to blame for the failure of the melting-pot to fuse the foreign elements that have come to us.

We have been too tolerant. It is simply our nature. Moreover, so many of our new arrivals came from lands where oppression of one sort or another exists, where hardship and lack of opportunity prevail, where there is no strong feeling of national loyalty, and not much basis for racial pride, and therefore not much temptation to resist Americanization over here, that we have lumped our come-overers together, and partly blinded ourselves to the fact that many of them in the last quarter of a century came from a highly organized autocratic state that has seen to it that its nationals have been inoculated with both national and racial pride, and that they resist alterations of their "Sittlichkeit" and their real loyalty with great obstinacy.

The result is what we now have in America.

We are faced with a condition, and pedagogical theory dare not carry its aloofness from national needs so far as to overlook differences in the fundamental nature of educational problems.

A European state, which is sending out its nationals as immigrants or colonists into all parts of the earth, may introduce a foreign language into a school for privileged classes, like the German gymnasium, at an early age, may introduce even the language of foreign rivals and enemies, without affecting unfavorably in any respect the national morale. The accompanying schools for the unprivileged masses are kept absolutely nationalistic.

The United States, on the other hand, which is constantly receiving large numbers of immigrants, partly trained in alien ways of thinking, grounded already in an alien mother tongue, who settle largely in industrial centers, or in farm communities containing large numbers of their fellow-nationals, has quite a different school problem to solve. With only one set of schools, in accordance with the democratic principle of keeping open the paths of opportunity to all on equal terms, we cannot introduce German, French, Italian, Polish, Dutch, Dano-Norwegian, Russian, Yiddish, or what not, as optional studies in the common schools. Nor can we make an exception of any one of them. For us the only answer to the question of German teaching in the grades that does not lead to an intensification of the folly or madness of the past, is a demand for a *one-language* grade school. And so German must go from the grades. And it must stay out of them. And we as teachers have no cause to regret the removal.

When we take up the question of the right of German to a place in our high schools, the problem is different, because the school is different.

In one respect, it is true, our high school is just a continuance of the grade schools. It concludes the schooling of the vast majority of its graduates. For that reason the question is repeated: "Of what use is a modern foreign language here any more than in the grades?"

Intelligent men, not influenced by momentary passion, have said to me in substance: "We have felt all along that the position of German was

factitious, that it was stimulated on a false basis, seeing that in the short time which can be given to it at best, nothing really worth while can be accomplished. Of course, we read German readily ourselves, because our business or profession has required us to keep it up year after year for many years, but our mastery, such as it is, is due wholly to such continuous use. What we got in class was so slight, so infirmly lodged, so unrelated to anything else, that it would have gone like a gentleman's Latin, or like a summer's storm that leaves not a wrack behind. Then why waste the pupils' time on such an evanescent modicum of attainment? Why not insist rather on concentration upon something vital to the future of the student?"

Such attacks appeal strongly to a practical age, and indeed have their justification to some extent, for two years devoted to desultory study and practice of a foreign language in our high schools, where the student is surrounded at home and on the street with his vernacular, is about equivalent in time to six weeks' residence in the country whose language is studied, and not equivalent to three weeks in actual effectiveness. Put in this way, the futility of *two years'* study of a foreign tongue is very nearly self-evident to the average taxpayer. If to this is added a natural and understandable hostility to the language of the enemy, the taxpayer is likely to insist on sweeping the teaching of German completely out of the secondary schools, as well as from the grades.

But another element enters the problem. Our schools are largely elective. Students determine in large measure the fate of elective subjects of study. Just now the high school student is taking the matter of German teaching in hand. Many high schools of this state—and what is true of Michigan is true generally throughout the nation—which have offered German courses heretofore, and maintained a teacher for the subject, find no demand for such work. A complete sentimental boycott exists. In place of German, French is desired. School boards must act. They cannot act always on ideal considerations. The financial problem must be solved first. So they simply cut out German from the curriculum, and substitute French. One member of such a board said to me: "We cut out German this year. We don't know whether we were wise, but there was nothing else to do."

Still we must never overlook the fact, that our secondary schools are for at least a percentage of their graduates, the natural and essential preparatory schools—the popular academy—for college, university and professional school. As such they should try to be as liberal as possible, in provision for elementary work leading to the solid, cultural and practical professional work of the higher institutions. If German is found to have its justification in the work of these higher schools, as heretofore, then the better high schools should make it a point of honor to tide over a sentimental boycott, and maintain an opportunity for preparatory work in it, though the numbers electing it greatly decrease.

The fate of German in the college preparatory portion of our high schools must depend largely on its ultimate fate in college and university. Its fate in college and university depends on the estimate we put upon it as a factor in our national life. If we discard it out of our national life entirely, it will of course disappear completely from our schools, and will have no more place in them than Turkish, Chinese, Japanese or Bantu. It is hard to say what will be the ultimate judgment. In a western state the proposal was made, according to report, to substitute Choktaw for German in the schools, it being the language of a more highly civilized people. The extent to which such ideas gain recruits measures the extent to which German will be abandoned and eliminated from our national interests.

National hatreds are more or less inseparable from a state of war. And especially do they keep pace with outraged national ideals. To what degree and for how long time our national ideals will continue to be outraged by Germany does not lie in our hands, but it is already plain that, like rumor, the sense of outrage "crescit in eundo." The longer the conflict lasts, the deeper and more lasting the hatred engendered by it, and the deeper-seated will become the opposition to everything German in American life.

At any rate, this much has become certain: things cannot go on in the future as they have in the past.

The German language can no longer be taught as the vehicle of German kultur. Departments of German in colleges cannot look upon themselves as missionary centers of "Deutschtum," whose function, in the words of Hexamer, of the German National Alliance, is "to inoculate" the children of Uncle Sam very powerfully "with the virus of kultur." These things belong to a past that is already as hopelessly dead as the mummies of ancient Egypt, and if anyone thinks he can galvanize their crumbling, dusty remains into the semblance of life again at the end of this war, the meaning of events is wholly lost upon him.

The spirit of German teaching is going to be wholly changed. The text book, with its glorification of everything German, is going into the limbo of museums of curios. The German-minded teacher is going to perform a miracle, or he will follow the text book. Teaching of German is going to be Americanized, or—eliminated.

While the wind is in its present quarter, the straws all blow one way. Times of stress call for revolutions, and so the whole place of German in the American scheme of things is in for a testing. The insistent question is, and will continue to be, "What use is it? Can its use overbalance its harm?"

Teachers of German, if they wish to keep their place in the midst of a very hurricane of criticism or questioning, must find an answer to the above questions—an answer, too, that carries conviction to the intelligent young man who is preparing for his career, as well as to the intelligent citizen on whose good will and support the educational system of the country rests.

My answer, after a good deal of consideration, is as follows:

German, when taught by an American-minded teacher, does not "inoculate the children of Uncle Sam very powerfully" with kultur. It does not hinder Americanization or spoil Americans. In other words, the language itself does not carry with it the civilization of the people of whom it is the mother tongue. Even an understanding of that type of civilization, its art, literature, political organization, industrial and scientific achievements, etc., does not carry with it admiration. It may carry with it hatred and disgust. That all depends upon the teacher, the manner of presentation. Glorification of Germany, accompanied by disparagement of America, or by ill-judged enthusiasm for things distinctly un-American, lay always at the bottom of the evil in past practice. Conscious or unconscious propaganda for the German system, as superior to the American, furnished the substance of the drill exercises of all kinds, and the teacher added the influence of his approval or supplemented it with his own web. These wrong practices, however, are not inseparable from the subject; they inhere in the teacher, text and purpose, which may be reformed. A proper elision of these adventitious evils can render the subject harmless for American youth. But this means a thorough-going reform in both *text* and *personnel* of the German departments of our schools.

Simple assurance of harmlessness, or possible harmlessness, is not enough. There must be positive *utility*. I am not now talking of utility in its petty sense. I do not mean the utility of German on a trip abroad, or in talking to German-speaking customers or patients in a community where Americanization is not yet complete. Such utility is transient, will pass away, and ought to pass away—and, let us hope, they soon will pass away as a result of efforts now under way for Americanization of all our immigrants. What I am thinking of is the permanent utilities, the big utilities, the things that loom large in American national life, and will do so, even when our unification is complete.

First of all let me express again what I have said and written again and again in the past. The leaders of the world to-day, in order to have a passport to the treasures of the past and the activities of the present of the whole civilized world, such as the Latinist possessed a couple of centuries ago, must have at least a reading knowledge of three modern languages—English, French and German. In my judgment, this is true to such an extent that it would continue to be true for a generation to come, even if the result of this conflict should be comparable to that of the Thirty Years War. Of course, if Germany should drop out of the race for two centuries, as she did then, this opinion of mine would gradually lose its force. Germany would become an imitator, a third-rate laggard, and we should care little more for what she produced in the greater departments of civilization than Europe did from 1648 to the advent of Lessing. But for the present, and barring the darker prospect, at least until it becomes a specter visible on

the horizon, our leaders should command the German language as well as French.

Again, as long as scholarship implies research, as long as scholarship is international, and implies first-hand knowledge of the materials of scholarship, German must remain a requirement, and those who are responsible for the advice and direction of the aspirants for higher degrees and unusual professional attainments should not neglect to point out this fact very early.

Scientists may here and there express the view that America has reached such a high degree of development in science that she can go on quite well without any dependence upon Germany, and therefore that the German language is not of use to the scientist. This is a slightly wrong envisagement of the relations. There is no talk of our leaning upon any foreign nation. Possibly we did lean thus in the past, but that is not one of the permanencies that need to be considered. That was to pass away in time, anyhow. I am talking of coöperation, perhaps even of leadership; but either requires constant mutual understanding. The scientist equipped with German will still have an advantage over the one without it. The chemist, the physician, the specialist in almost any field of pure and applied science will be better with the full international equipment than without it.

But let us take a still wider look. We are going to have trade rivalries, and in trade Greek meets Greek, or in other words, Yankee meets German. The prospects are that trade warfare may be sharp and, as in the past, unscrupulous. We are now grown familiar with German trade methods—the industrial penetration supported by the Deutsche Reichsbank under imperial orders, dumping, underselling at a loss to establish trade monopolies, preferential positions secured by secret imperial bargaining, etc. If, for example, in South American trade, a German who knows English and Spanish competes with a Yankee who knows Spanish but no German, the German will *see* his rival's hand and the Yankee will be *blind*, for the former can carry on any of the nefarious operations backed by the Deutsche Reichsbank and not be detected or understood by the Yankee trader. In other words, the past will be repeated. Not only will this occur in South America, but with suitable alterations the world over. Wherever the German carries his trade rivalries, there his competitor will profit by an ability to follow him intelligently. Let me add, it will not do to leave this trade to those Americans who have come over recently from the empire, for they are often mere agents of German industry in American camouflage. Our young American business men should prepare for this rôle themselves. As trade grows international, the needed equipment grows international also.

Then there are other classes who get their equipment at our colleges, who need German, not perhaps vitally, but ideally and very practically. The journalist would do well to add German to his many other acquisitions. The consuls of the United States, no matter in what land stationed, will have to guard the interests of the United States in a sharp contest, partly of

honest rivalry, but partly of intrigue, both political and commercial. In the past the German agent has been everywhere. The antidote should be just as ubiquitous, and the antidote is a loyal, watchful American officer, who includes a knowledge of German among his many useful talents.

Our nation, without such public servants, would be a blinded giant in the world struggle. To confide the keeping of this valuable eye to a class of people in our midst who are newcomers and often mere agents of a rival or even hostile power, is worse than blindness; it is betrayal of our national interests. So here again we need young Americans trained as the eyes of the government and the people.

Still more is needed. Whether a people is hostile or friendly, an understanding of it is essential to any *modus vivendi* in a modern world, where nations are brought into direct contact of some kind every day. If we are to play our rôle worthily, we must have leaders who can judge wisely and help us decide understandingly in choosing our course of action toward the nations about us. Any man who aspires to any kind of influence in moulding public opinion, in however humble a way, in schoolroom, pulpit, press, on street curb or platform, in private or public, will be better prepared for that rôle if he has something of the international leader's equipment.

So an acquaintance with German art, music, literature, philosophy, political and industrial history—in fact, their whole “*Sittlichkeit*,” is an asset, often an inestimable asset in public leaders. It must be simply acquaintance, not passionate adoption.

I might close the case in favor by citing the view of a French editor, written to a Milwaukee editor, who was fighting the removal of German from the grade schools. The Milwaukeean had heard that German was still being taught in the French schools, and conceived that if that were the case there must certainly be strong reasons in favor of its retention even during such a hatred stimulating conflict as the present one. The French editor wrote in substance that German was still taught in French schools, because French citizens demanded it. It was taught to French children by native French teachers, in order that they might understand and be on guard against the propaganda and intrigue and machinations of the enemy. It was to be an antidote to the poison of kultur—a national protection.

So I put the case. If properly taught by Americans, to Americans, for Americans, German remains a subject which has legitimate claims upon the attention of the college student everywhere, and upon the high school student wherever he is preparing for college or a professional career.

If taught as indicated, school boards would be wise not to yield more than conditions actually force upon them, for a normal reaction may occur, not, of course, back to anything comparable with its place in the past, for many things are dead beyond hope of resurrection.

Among these dead things, I suspect, is Germanic philology. The doctors have been sitting at its bedside anxiously for many years, thinking every

pulse-beat will be its last. It came to American universities merely as a part of the system imitated here, and has continued to exist only because made a condition for a higher degree. In the reaction to be expected against things German, Doctor's degrees in German are likely to be little sought after. So Germanic philology in America may be given a decent burial soon, and then forgotten. How far seminaries will go cannot be predicted confidently, for with a teacher of personality and learning such courses can have a great deal of human interest, and arouse a demand for them, but with the slump in the whole subject and the inevitable slump in the demand for college teachers, this class of courses will suffer also, and economy may force a complete reorganization of advanced work. The result after the war, if the reaction anticipated occurs, and an appeal to soberness is effective, and the recommended reform in spirit and purpose is brought about, we must expect a general relative increase in the elementary courses, with a reduction in all higher work, until and unless a demand for teachers arises, and this is not to be anticipated for years.

My whole view is, that German teaching has a legitimate and valuable place in our school system; that it is suffering, partly from its own fault, partly from national animosity of a time of war; that if we learn our true function and begin whole-heartedly to perform it, we are likely to regain a certain proper favor, not beyond our deserts; but if we do not meet the new conditions by a reform of spirit and purpose, we can look to nothing but black eclipse now and indefinitely.

ENGLISH CONFERENCE

THE BUSINESS MAN'S CONCEPTION OF THE VALUES OF LITERATURE

SUPERINTENDENT FRANK A. GAUSE, BAY CITY, MICH.

When asked to speak to the English section of this association I exacted as a condition of accepting the invitation, that I was not to undertake to discuss the technical phases of the teaching of English. You know it is a habit with us superintendents to tell other people what ought to be accomplished, then loaf while others do the work. Pardon the digression, but I want to say here that unless the teacher knows more about the technique of her work than the superintendent or the principal, somebody has made a mistake in the selection of the teacher, and if he has not made a mistake he ought to devote about one hundred per cent of his time leaving her alone.

I do not come before you, therefore, to offer any helpful suggestions as to the method you should employ to get certain results. That would be presumptuous. I am here the rather to discuss the values of literary study from an angle from which you may not have viewed it. To make use of a current figure, you are, in a way, in the position of those behind the lines, while the business man is in the position of one in the trenches. You are drilling for the fight, he is in the fight. It may be of interest to you and it may help you to do your work to be advised of the conditions under which your charges are to perform, and of the qualities which make for their best performance in the field of actual encounter.

I shall, then, discuss the subject under consideration, not so much from the point of view of the teaching technique as from that point of view in which the teaching of English literature relates itself to life.

That there may be no misunderstanding let me say right here that I would not stress literature to the extent of unbalancing the curriculum. Living implies the means of livelihood. As an old Hoosier friend of mine used to say, "They's no use buyin' books if ye ain't got any ham in yer smoke-house." Here's more truth than poetry, for the ability to earn a competence is basal. Everywhere this fact is being recognized in our schools, and our colleges and universities are incorporating in their curricula courses of study which will equip our young people for the practical purposes of life while at the same time qualifying them for that higher life which I have in mind.

It is, of course, trite to say that one of the most imperative demands the business world is making today is for men of genuine culture. And literature, if rightly taught, makes directly for that end.

I am speaking of literature in the mother tongue, not of that written in a foreign tongue. I said not long ago before a federation of women's clubs in one of our cities that we are giving boys Latin very much as Tom Sawyer gave Peter, the cat, Pain-killer—because some scholastic old Aunt Polly gave it to us. You remember how, on the occasion of the inquest, Tom insisted that Peter was agreeable to the treatment and because he found him so he pried his mouth open and gave him a liberal dose of that liquid fire? Well, most boys take to the ancient language treatment just about as agreeably as Peter to the Pain-killer—they'll swallow it if you drench them with it.

The average graduate of our colleges and universities has covered from six to eight years' work in the study of foreign tongues and from two to three years in the study of his own. There may be good sense in this, but I believe that if the purpose of education is to fit one for living the means of education must be a mastery of those things which will help one to live, not in the dead past, but in the living present. You remember the story of the philosopher and the fisherman? They were in a boat far from land when the philosopher inquired of the fisherman if he could read Plato in the original. Receiving a negative reply, the scholar advised the man of affairs that he had missed one-half his life. Presently the hard-headed boatman coolly inquired of his more cultured companion if he could swim. "No," replied the man of learning. "Then," returned the fisherman, "you are about to miss both halves of your life, for the boat is sinking." How many of our people are missing both halves of their lives because of their inability to adapt themselves to the practical situations in life!

It is not unlikely that the philosophy of Diogenes would have made a more serious impression on contemporary and subsequent thought if that eminent Greek occasionally could have relayed Mrs. Diogenes by a practical turn at the tub.

The practical man is essential and just what every man should be. The man who cannot earn a respectable living is equally to be pitied with him who gets nothing out of life but his bread and butter. The vocation is one-half of life, the avocation, the other half. My ideal man is he who is posted on what is up in the world, who gets things done, who mixes in politics, who throws his hat in the ring, and who at the same time has a heart responsive to the beauties of life and the needs of men.

I do not conceive of literature as a vocation. It must very decidedly assume the character of an avocation, for not one per cent of the pupils of the average high school will engage in a vocation of even remote literary character. I am sometimes fearful that in our efforts to give the child a technical skill in the manipulation of the King's English we lose sight of one of the prime objects of the teaching of the mother tongue. Let me warn you, teachers of English, that your greatest accomplish-

ment is not in turning out *literatae*, it is in turning out men and women of culture and of character. Mathematics may have its disciplinary value, science and other subjects may have their practical values, but I assign to the study of literature the rather exclusive function of culture and of character.

I cannot give my consent to the proposition that the prime object of the teaching of literature is the development of the child's ability to turn the tricks of rhetoric or to develop a language power that will further his practical interests. I give this field to culture. I prefer to believe that children advance rapidly in literary appreciation who have or rather who retain and who have not had educated out of them the power of expressing themselves forcibly and idiomatically and in fitting imagery. Children and grown people who have not been exposed to our conventionalities speak the language of imagery.

A few years ago I was passing through a flooded district in southern Indiana when one of my boys, then three years of age, observed of some trees whose bases were submerged, "Daddie, the trees are washin' their feet, ain't they?" At another time when we adults were speechlessly admiring a century blooming series the same child said, "I'd just like to crawl away back in there and sleep forever." We adults wanted to say something, but conventionality had educated out of us the power of adequate expression. We all wanted to say something and couldn't. The child said it. That child was face to face with nature and he responded naturally. Don't you remember what Paul had to say on this subject? "When I was a child, I *spake* as a child, I *understood* as a child, I *thought* as a child; but now I am become a man, I put away childish things. For *now* we see through a glass darkly, but then face to face."

O, what beautiful imagery a child uses, and what a failure we make of it when we educate him away from himself! What "social wants against the strength of youth"! The best poetry in the history of literature has been written in the imagery of childhood. Great writers do not see through a glass darkly—they see things and men and nature face to face. And as they see, they speak—speak the language of children and of poets.

Speaking from the professional point of view, for the moment, I think we will not go far wrong if we confine our efforts and those of the child during the first four years of his school life to two very definite things: mastery of the mechanics of the book and power to grasp quickly and concisely the essential contents. There, our one problem, it seems to me, is to so far accomplish the child's reading facilities that from the fifth grade on thought getting will not be interrupted by any mechanical obstacles. By this time the mechanical processes should have become a habit with him. Incidentally, under careful teaching, the child will have gained much in richness of vocabulary, in idiomatic phrasing, in all

around ability to express himself, and he will have stored away many facts that are fundamental to the fields of more advanced study. In other words, we propose, in the first four years, little more than to furnish the child with the key which unlocks the door of recorded knowledge and expressed sentiment and imagination. To paraphrase Ruskin's figure a little we turn over to him the key of the golden treasury.

With the child of the upper grades we may venture a little farther. Having mastered the mechanics, the right kind of a course of study and the right kind of teaching will accomplish many things for him. He will continue to grow in those unmechanical things which he earlier undertook, but in these grades his ethical and esthetic interests become strong. Not only will the child at this age appropriate the language, the idiom and thought of the author, but he will, if rightly handled, develop a surprising degree of literary taste and even of literary accomplishment. Then it is quite certain that he will appropriate to his own character much that is fine and splendid in the lives of those imaginary characters, those idealized creations of the literary masters.

This is not theory, for I've tried it, or rather I have had it tried on myself. As a child I was extremely cruel to animals. They applied hickory on me as a preventive, but that only caused me to transfer the scene of my operations to more secluded spots. I had now added another youthful crime to an already long list. I had been cruel and now I was living a lie. One fortunate day one of the best teachers I have ever known got hold of me. She did not preach to me nor scold nor even attempt openly to inhibit. She merely placed in my hands a small copy of selected poems of Robert Burns, with the banter that she'd bet me a box of candy I couldn't read them. I won the candy and she won me from myself and that, with her, was the big stake. Perhaps, after all, I was not cruel; I had just not learned to put myself in the other fellow's place. How feelingly the poet put himself in his "fellow creature's" place, and with what tender sympathy I found myself, for the first time in my life, doing exactly the same thing! My teacher's remedy was effective, for from that time on I do not remember that I ever ruthlessly tormented or killed anything.

Such appeals were sure of their immediate results and like most poetry learned in childhood the fuller significance, the deeper thought is revealed as life unfolds to us its meaning. As a child, "To a Mousie," expressed to me a tender sympathy for my fellow creatures. As men and women, the last two stanzas express for us the larger truth:

Still thou art blest, compar'd wi' me!
The present only toucheth thee:
But, och! I backward cast my eye
On prospects drear!
An' forward, tho' I canna see,
I guess an' fear!

For months I revelled in these fine sentiments and through the years my love of the poetry of Burns has grown until it is now almost a passion. How Burns *represented* to me the things among which I lived. Get one to see beauty in a thing and his interest in destroying it is at once converted into a desire to preserve and protect it, and what living beauty there was in

“Alas! it’s no thy neebor sweet,
The bonie Lark, companion meet!
Bending thee ’mang the dewy weet!
Wi’ spreckled breast,
When upward-springing, blythe, to greet
The purpling east.”

The average American scoffs at art, despises poetry, tolerates culture and considers religion a necessary inconvenience.

I believe the schools may do much in the way of reformation along these lines by introducing into their courses such literature and such methods as will instill into the hearts of young America an intelligent and sympathetic regard for Nature.

Without any cold, analytic processes of presentation let Wordsworth tell our boys and girls of the beauties of Yarrow:

“The swan on still Saint Mary’s Lake
Floats double swan and shadow.”

Or let him sing to them of the Cuckoo:

“Oh, blithe newcomer; I have heard,—
I hear thee and rejoice.
Oh, cuckoo, shall I call thee bird,
Or but a wandering voice?”

Or let Shelly pour out to them that tremulous ecstasy:

“The pale purple even
Melts around thy flight;
Like a star of heaven
In the broad daylight,
Thou art unseen, but yet I hear thy shrill delight.
Teach me half the gladness
That thy brain must know,
Such harmonious madness
From my lips would flow,
The world should listen then, as I am listening now.”

The more delicate and tender the flower the finer the spirit within, the finer the spiritual appeal from within; yet who would search for that inner spiritual life with the instruments of the anatomist? How

instantly would the object of our attention assume the character of fact, of unimagination and of unspirituality! How exclusively and purely spiritual its response when addressed only through the imagination of man, and how pitifully it fails of adequate response when addressed through the medium of intellect! Touch it once with the intellect and it at once loses every spiritual quality, commune with it through the medium of the imagination and in the words of Wordsworth it at once "Gives thoughts that lie too deep for words or tears."

The same principle applies in the study, or rather in the presence of those flowers of the poetic mind—analyze them and you do it only to make them commonplace facts—but if the teacher by judicious, well thought out questions, stimulates the child's imagination she will soon find that her teaching is not only in harmony with those laws which determine spiritual growth, but it is in harmony with the true purpose and method of poetry.

How utterly one breaks down in any attempt to analyze Wordsworth's stanza:

"I wandered lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host of golden daffodils."

But how irrepressibly responsive will that teacher find her class who encourages her pupils to run riot in the rich imagery of this poem! She who attempts analysis here fails of any end whatever. She disappoints the child and gives him a positive distaste for the finest things in our literature; she is out of harmony with the purpose of the poet himself, and so defeats the purpose of his message; she has not taken advantage of the child's instincts or of his natural interests and she has caused him to miss the message the poet sent him. In a word, the instruction has been out of harmony with the child's interests and with the poet's purpose, and the result is inevitable failure.

In this connection Chubb has this to say: "Imagine Lucy Gray so sliced and served! No conspectus of the story, no intimation of what is coming, nothing but the daily dole of slices. It is all plain to the mind's eye—the anxious, cautious, monotonous reading, re-reading and reading again of the first stanza. Mary halts, or trips on the word 'solitude.' John will try to avoid the pitfall, but it takes Jennie to manage the verse. Then books are shut and the inquisition follows: What is the title? Spell 'solitude.' What does it mean? Look it up in the dictionary, etc., etc."

That sort of thing is not always confined to lower grade teaching. Not long ago I visited a certain high school in the east where I heard

a recitation in third year English. The poem being considered was "The Grecian Urn." The teacher did a very effective piece of dissecting and to prevent her doing for me what I was very certain she was doing for that class I left the room. The teacher was making no appeal to the imagination of her pupils, she was simply anatomizing. I can't think of anything to compare with such a method except it might be the attempt of the chemist to discover of what elements the Grecian Urn was made. In the latter case the identity of a perfect work of art is utterly destroyed and in the former, to the individual who is subjected to the process, the finest creation of our English masters is torn into worthless shreds and its unity forever destroyed.

Not long ago I heard one of Indiana's foremost writers make the statement that he despised *Paradise Lost*, and that down to the time he studied that masterpiece in University that great religious epic was his favorite study. I asked him to what he attributed his dislike for the poem and he answered, "Oh, context, allusion, metrical peculiarities, metrical harmonies, metrical inharmonies, and all that sort of stuff go clattering through my head every time I hear the words, '*Paradise Lost*,' and every time I run upon an especially striking passage I am reminded of some fool mechanical question raised by that professor back in the university!"

It isn't gross or tangible or sensible fact that the artist is concerned with, though that may be the medium through which he seeks to objectify the spiritual essence within. Was it not the poet Heine, who, as he knelt at that shrine of beauty, heard the Venus of Milo say to him, "Dost thou not see that I have no arms, and therefore cannot help thee?" and was it not Blake who said, "What! it will be questioned, when the sun rises, do you not see a disk of fire, somewhat like a guinea? O no, no! I see an innumerable company of the heavenly host, crying, "Holy, holy, holy is the Lord God Almighty!"

Poetry, to be such, must be idealistic. The lilies of the field, the Rose of Sharon, the Mountain Daisy,—all are nothing less than God's poetry, God's art, expressing in exquisitely delicate form the essence, the soul of sensible things; to the poet the wild inarticulate colors of the evening glow are nothing less than Nature's grand harmonies, unheard but filling heaven and earth with Celestial music, sensible only to the spiritual, the poetic ear.

Examined analytically these manifestations do not rise above the plane of physical fact. Analysis is not the poet's method. He speaks the language of imagery and of symbols, and he speaks from the universal heart. How tedious does Browning become to us as we wind in and out through his subtleties and his close psychological analyses! And how we are thrilled by those scattered oases, those lines like "The sprinkled isles, lily on lily o'erlace the seas." How impatient we become for real poetry, and how most of us stop before we find it in "The Epistle of

Karsish, the Arab Physician." Few people will read three or four hundred lines of rather dry and prosy narrative to get ten lines of poetry in a postscript. But if we persist we are rewarded with that final burst.

"The very God! Think, Abib, dost thou think?"

"So the All-Great, were the All-Loving, too?"

So through the thunder comes a human voice saying:

'O Heart I made! A heart beats here.

Face my hands fashioned, see it in myself.

Thou hast no power, nor mayst conceive of mine

But love I gave thee with myself to love.' "

The same principle that underlies the making of poetry underlies the study or the teaching of poetry, and I think we may quite consistently include other forms of literature as well. It is not the tearing to pieces, the analysis of a piece of literature that makes it valuable as a subject in the curriculum; it is the development in the child of that power of imagery which will make him at one with nature, which will enable him to translate nature's language in terms of his own experiences, which will enable him to discriminate between that which is good and genuine and that which is vicious and superficial. Make your appeal to his spiritual eye and his spiritual ear and your teaching will have to be sound and effective, for then you do no violence either to the principles or the purposes of art. Make your teaching of literature a fact getting, a knowledge getting process, and you do violence to every law and principle of art, and you have caused the child to miss the message of the artist.

Let me state again as a fundamental consideration in determining the function of the teaching of literature in our schools that more than ninety-nine per cent of the people who have use for literature use it as an avocation rather than a vocation. This fact the teacher of English must accept and make the most of. Let us not scout the idea that there must be training for character, for intelligent sympathy. During the last four years the importance of this sort of training has been brought home to us. The wasted millions of human lives, of almost untold billions of property, human suffering measured only in God's infinite balance,—all this has been visited upon the world simply because that boasted "Kultur" of Prussia has turned out to be, not culture at all, but only head-training. We did not know that the great Prussian school system upon which we were attempting to model our own would, after all, turn out to be only a system of grindstones to sharpen German wits and German knives for the devilish and damnable purposes to which they have been devoted. In our enthusiasm for the German educational system we had entirely lost sight of the fact that a socially safe man's heart is always bigger than his head,—that that social efficiency about which we have

had so much to say the past ten years depends primarily not upon skill but upon disposition. Back of the skilled hand and brain there must be a broad-minded, intelligent sympathy giving direction and character to conduct. We have been shown in a most practical and tragic way that skill is an instrument that may be put to the most damnable purposes. Germany has been training for efficiency and for self, not for humanity and for God. Let me again and again stress this thought, that the study of English literature must remain our chief instrument of culture.

Charles M. Schwab sounded a note of warning the other day when he said, "Whether we like it or not, the worker is going to rule the world." Mr. Wilson has said a great deal about the world being made safe for democracy, and the corrolary of the President's utterance is that democracy must be made safe for the world. If labor is to rule the world, the laborer must be qualified to give serious and intelligent and sympathetic thought to his problem.

The average intelligence is not apt to go far wrong in its ultimate conclusions, but the disposition of the average man to put himself intelligently in the place of the other fellow is not too frequently manifest in the deliberations of those having to do with the making and the administration of our laws.

The character of our legislation and of our judicial procedure is being more and more determined on the basis of the sentiment and opinion of the common people. In other words we of this country are more and more assuming the character of real democracy. I have no doubt that the character of our government within the next ten years will very accurately reflect the average thought and character of the average American citizen. That being the case, our problem is definite and our duty clear. As I conceive it the problem is one for the schools exclusively, and it is one comprehended by the two words, *skill* and *disposition*.

In this duality, the school will find its work. By skill we mean the most economic and efficient doing of the practical things of life, and a consideration of that topic does not come within the province of this discussion.

I would not hand the English Section of this association any goody, goody, sentimental stuff,—I want to be considered rather in the light of one who has kept his feet on the ground and has given the teachers of this section something usable and practical. And it is with that thought in mind that I reiterate what I have said, that these most distressing times are urging us and the future is calling pitifully to us to train for character, to impress indelibly upon the hearts of the future men and women of this country the golden rule. With the spirit of revenge and hatred that is likely to follow this war there comes the immediate and imperative need of broad, liberal, sympathetic culture.

Upon such training, as I see it, depends the happiness and safety and peace of the world.

This, teachers of English, I believe is your problem more than it is the problem of all the other educational agencies combined. Practical yes, the most urgent and practical problem before the educational world today. Give a majority of the children of this country a taste for good literature and I think it no exaggeration to predict that democracy, at least, so far as America is concerned, will be made safe for the world.

Then America will enter no wars for conquest, no international disputes for selfish gain, no conflicts for glory.

Your work makes for character. The appreciation of good literature is a guarantee of a safe man. The study of the reflections of men who have seen deeply into life and who have portrayed life in all its phases,—the high, the low, the good, the bad, the comic and the tragic will give one mortal conceptions which must find practical expression in conduct. Literature offers us a wholesome and profitable avocation.

Here, history, science, mathematics, sociology,—all reveal their inner truths to us through the interpretation of men who dwell in the heart and soul of things. Will we admit these princes of the spiritual kingdom into the companionship of our children? Will we open to the youth of America the gates of Kings' Gardens?

If we would direct the next generation into ways that lead to life I think there are none more certain than those that are blazed by the great writers. It is true that a taste for better things in life may be acquired after maturity, but youth is the impressionable age,—the age in which habits of taste and of thought are formed with the greatest economy of time and energy. The child's life is full of poetry. He sees things as they are. And it is only when we force upon him a departure from nature that he takes to himself that unguineness of character which the world too frequently interprets as the amenities of culture. With Paul, Lord Tennyson laments the child's departure from nature:

"Cursed be the social wants that sin against the strength of youth,
Cursed be the social lies that warp us from the living truth."

Literature makes for efficiency, it makes for life,—for that higher spiritual life in which men find the final and only justification for being. In those quieter hours when

"In meditation, fancy free,"

things material are forgotten and feelings throb within us which our own poor powers of speech are too feeble to express the masters come in to keep us company and to express for us those deeper feelings and emotions which, unexpressed, give us unrest. If some winter night I am musing over the days that are no more, my Quaker friend takes his place at the fireside and in language most adequately expressive of the thoughts that press for words, he tells the story of my heart:

"Oh time and change! With hair as gray
 As was my sire's that winter's day,
 How strange it seems with so much gone
 Of life and love to still live on.

* * * * *

"No step is on the conscious floor!
 Yet Love will dream, and Faith will trust,
 (Since He who knows our need is just),
 That somehow, somewhere, meet we must."

and I am satisfied.

Or it may be that Aunt Mary of blessed memory has come into the circle of remembered spirits to remind me again of the days that were. Thoughts inexpressible arise, and the Hoosier Poet steals into my reveries and whispers the words that I wanted to say:

"And O my brother, so far away,
 This is to tell you she waits today
 To welcome us:—Aunt Mary fell
 Asleep this morning, whispering, "Tell
 The boys to come!" And all is well
 Out to Old Aunt Mary's."

Or if I am thinking of the mysteries of death and of that After-here, what better company than Alfred Tennyson? With matchless delicacy of touch and fine sentiment he utters the suppressed language of my heart:

"Sunset and evening star,
 And one clear call for me!
 And may there be no moaning of the bar,
 When I put out to sea.

* * * * *

For tho' from out our bourne of Time and Place
 The flood may bear me far,
 I hope to see my Pilot face to face
 When I have crost the bar.

Such, to my mind, is the aim of the teaching of literature. That is Education,—it is life.

ENGLISH AND THE PROJECT METHOD

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Two things are essential for the successful use of the project method in the teaching of English. The first is the separation of literary English from practical English. The second is the conception of the English class as a social group in which the teacher is a member rather than a dictator. Until these two things are realities, there is little opportunity for the project method to succeed.

The separation of literary English from practical English does not mean that in one semester or one-half of a semester literature will be studied exclusively, while in the other period of division the entire time will be devoted to oral and written expression. It means rather that reading and expression in both oral and written forms will have a place in both periods, but the content and the technique of handling the two kinds of English will be different. The most practical division is, of course, by semesters, as one pupil may be efficient in literary English, but he may need to repeat the course in practical English, or vice versa. Too frequently a pupil's power of literary appreciation saves him from failure which is due him on account of deficiency in the mechanics of writing.

There is even a more potent argument for the separation of these two phases of English. The pupil whose interest has been aroused in some piece of literature decidedly resents the intrusion of drill in mechanics, a lesson in grammar, or assignments for written work. He naturally wants to go on with that literary discussion which has stimulated him. In a similar way his interest in some problem of practical English is dulled by postponing a development of the problem in order to spend a day or two on literature. This scrambling of English frequently causes such vicious practices as giving over Monday, Wednesday, and Friday to literature, and Tuesday and Thursday to composition. Would a teacher of science interrupt a development of some interesting problem in electricity with two lessons in botany? There is as much difference between practical English and literary English as between physics and botany. The National Committee of Reorganization of English in Secondary Schools in its notable report calls the first "English for work," and the second, "English for play." Thus the motive, as well as the content and method of presentation, must be essentially different.

The necessity of this separation of literary from practical English for successful project work seems obvious. If the project is to be most valuable it must not only make an appeal to the pupil at the start, but it must hold the interest throughout. To interrupt the development with lessons on unrelated material is fatal. The pupil has the completion of

the project as a goal; he is eager to reach the goal so that he can have the joy of seeing and judging his efforts, and feel the thrill of satisfaction which comes to one who has completed a satisfactory piece of work.

Of equal importance to the project method is the conception of the class as a social group. The stimulus of group criticism which comes with a production that is to represent not the work of an individual, but the work of the group, is a lash much more effective than any the teacher can wield. This spirit of group responsibility must exist from the very beginning, and so the group must feel that it has had a share in the inspiring of the project as well as its evolution.

What part does the teacher play in this? A most vital part, to be sure. In the first place, the project must be very definitely planned out in the teacher's mind. To launch it requires the development of a situation that will bring forth the necessary suggestions. Patience is needed on the part of the teacher, as sometimes the desired suggestions are slow in coming, but if the instructor is fairly skillful, his patience will be rewarded. When the details are being determined upon, he must be ready to accept modifications proposed by the pupils if they are practical. Not infrequently the ideas presented by the pupils are better than those of the teacher's original plan. Once the project is under way, he must discreetly guide the activities of the class and see to it that everyone is doing his share, for there are always some who are willing to do more than their share to make a class enterprise a success and some who are quite willing that the ambitious ones should have the opportunity to do their individual share as well. If this condition is revealed, however, pressure is brought to bear upon the "slackers" by the members of the class in an effective way.

Projects in both literary and practical English vary greatly. Some consist of but one day's activity; others may extend through weeks and correlate many phases of work. It is one of the latter type that I shall consider first.

I have felt for some time that much of the work along the lines of practical English fails to be as generally efficient as it might be because it does not take advantage of the opportunity of giving the child content as well as form. It was with the idea that I should try to have my freshman high-school pupils get both that, upon the first day I faced them, I offered this challenge "Is Chicago a desirable place in which to live?" The reply was decisively in the affirmative, but I told them that they would have to prove their contention, as I had come to Chicago under protest, believing it to be a dirty, dusty, noisy, disagreeable city. They decided to try to convince me that I had misjudged the Middle West metropolis which they called home.

As a result, twenty-five oral themes in each class were directed at me, some of which had considerable force and reflected a great deal of

earnestness. At the conclusion of the talks, I told them that I had been impressed with a number of the arguments offered and had wondered if some sort of a permanent record of the information presented might not be of service. Various suggestions were offered by the pupils as to what would be a desirable means of preserving this information. Finally the waited-for suggestion came. "Why not write a book about Chicago?" The magnitude of a task never bothers a high-school freshman. The idea found instant favor. Each pupil brought a list of possible chapters, and from the composite list selection of individual chapters was made. Some of the chapters were written entirely by individuals, while a number of the longer chapters were the joint efforts of two pupils.

It was decided that the authors should be permitted to exercise their originality in writing their respective chapters rather than to have a general plan to follow. Each author, however, laid his plan before the class to secure suggestions and adverse criticisms. Many of these suggestions proved helpful. Newspaper interviews, narratives telling of visits to the city, inspection tours, rides in sight-seeing automobiles, and other devices were used to work out the chapters.

After the plans had been decided upon, the authors-to-be found their first problem was the securing of material. This situation gave a real motive to a week's study of library methods in which training was secured in the using of books, the card catalog, the Readers' Guide to Periodical Literature, pamphlets, and other library sources. A bibliography on each chapter was made out. This reading was supplemented by conferences with persons from whom information might be secured, and from personal investigations and inspection trips.

The introductory part of each chapter was read to the class, criticised rather severely by the members, and revised in accordance with the wiser criticisms. Later the completed chapters were read, criticised, and revised as the result of the class suggestion. Some of chapters were rewritten three or four times voluntarily, due to the earnest desire of the writers to have the best possible chapter for the book. At no time did the instructor suggest rewriting.

When the pupils had completed the writing of the chapters, they found that the next important step in book-making was proofreading. This gave rise to the need of a style sheet to go by. Punctuation and capitalization were then studied, not from textbooks, however, but from newspapers and magazines. Some of the pupils learned for the first time that printers actually follow definite systems in publishing magazines and newspapers. The pupils made their own rules and illustrated them with clippings from publications. They then corrected their own manuscripts in the light of what they had discovered, and exchanged manuscripts in order to correct each other's errors. The chapters were then read by the teacher, but no errors were marked. Instead, a slip

was returned with the paper, and on the slip was recorded the number of misspelled words and errors in punctuation, capitalization, and grammar. Another reading for mistakes followed, after which the copy was declared ready for publication.

About a third of the pupils have typewriters, and they offered to typewrite the chapters. Two days were spent on illustrating each chapter. Kodak pictures, pen and ink sketches, clippings from newspapers and magazines, and postcards were used. Each author designed a title page for his chapter.

As soon as the chapters were completed, they were assembled into a book, and a title page, a preface, and a table of contents were prepared. The bound volumes of "Chicago—Our City" are to remain the property of the University High School library, to be used as future generations of pupils see fit.

From the teacher's point of view the most important phase of any project is the fair evaluation of it as a desirable piece of educational work. Just what did these freshman pupils gain from their effort to produce a book? In the first place they learned how to seek and secure material from various sources. They learned something about the proper organization and presentation of material. At the same time they gained a great deal of information about, and an appreciation of, the city in which they are living. The necessary drill work on mechanics was given considerable zest through the fact that the pupils saw a real purpose to the drill, as they were desirous of having their book as free from errors as possible. In this regard they were made to feel a definite responsibility, as again and again they were told that their instructor would not correct their mistakes. Naturally the books are not free from errors, but they represent the best possible efforts of their writers, not the painstaking scrutiny of a teacher. In brief, the pupils gained information, training in written and oral expression, and drill in mechanics. At the same time they enjoyed the experience because they had a definite end in view, the publication of a book that would be a credit to their class and of some service to their school.

The chief difficulty the pupils found was the scarcity of material suitable for their understanding and use. For this reason a similar project could be used to much greater advantage in a smaller city or in a village, as the pupils could secure much information from personal investigations, trips, and other direct sources. They would also have a greater fund of personal knowledge to draw upon.

The book project should suggest many variations to teachers in different communities. Any definite scheme for publication of written matter always means added interest and zest in a composition class. Especially is this true if the idea of service is back of the project.

This idea of service was the inspiration for two projects which have been of decided value to the University High School this year as well as to the members of a sophomore class which has been responsible for them.

After spending two or three weeks learning how to read a newspaper in the most economical and intelligent fashion, the class decided that the daily reading of a newspaper was essential to one's education. Filled with missionary zeal, the pupils decided that every member of the school should form this habit. Various means were suggested, but finally the idea evolved of clipping the most important news articles, editorials, and cartoons from two of the leading morning papers and pinning them up in a neat and attractive fashion on a bulletin board in the school library. As this library also serves as a study hall, every student visits it at least once a day. Occasionally a good "funny" picture is used to enliven the collection of clippings, while announcements of the nearby film theaters are sometimes added. This daily digest of newspaper news is called "News a la Carte." It is edited by groups of two pupils, which change daily. The class voted that anyone who failed to do his share on the day appointed should be made responsible for the posting of an entire week. The "slackers" are conspicuously few.

Some of the students felt that these clippings had more or less permanent value and should be kept. This suggestion led to the organization of a clipping file. Large cardboard folders are provided. These are labeled with such titles as "Universal Military Training," "Prohibition," "Government Ownership of Railroads," "Education," and "War Poetry." Pupils are appointed to watch certain papers for a week, clipping everything that will be serviceable. These are marked with the name of the paper and the date on which they were published and are turned over to a committee which selects those that are valuable and places them in the file.

This clipping file has become one of the most helpful features of the library. It provides material for debates, oral and written themes, reports in history, civics, economics, science, and other courses. Such a file would be particularly helpful in a school with limited library facilities. It can be secured at slight expense. The maintenance of the file by pupils gives training in reading newspapers and magazines with a sense for permanent, rather than mere temporary values.

Projects are just as possible and as desirable in literary English courses as in the practical. No one subscribes more heartily to the idea that literature should be treated as an enjoyment subject than I do, yet I insist that the pupils should have a certain background of literary knowledge in order to understand and enjoy not only books, but newspaper editorials, cartoons, and even jokes. Here is a rich field for the project method.

Several weeks ago I showed my freshman pupils a number of cartoons from newspapers and read to them a number of jokes from "Life" and other humorous publications. Only a few were able to understand the pictures or see the point to the jokes; the majority of the pupils were not familiar with the biblical stories on which they were based. When I showed them that at least half a dozen jokes from one issue of "Life" were based on Bible stories, they decided that it would be a desirable thing to know such stories. Previous to this, pictures illustrating well known Bible stories had been pinned up around the room, and the pupils went on a hunt to locate the pictures which represented stories they knew. They also made a list of the stories about which they were unfamiliar. Later a list of one hundred and twenty stories of the Old and New Testaments which everyone should know was posted with the biblical references.

It was decided that all freshmen should learn these stories. Soon the corridors of the school were filled with a hundred and twenty-five boys and girls with Bibles under their arms as they hurried from classroom to study-hall. In order to give added zest to the study of these really interesting biblical tales, the classes challenged each other to contests based upon a knowledge of the stories.

Class meetings were given over to the telling of stories. After a pupil finished the tale for which he was responsible, other members of the class were permitted to ask questions of him if he had omitted any important details or made any misstatements. Allusions to the particular story or well known phases from it were called to the attention of the class. The pupils also wrote a digest of each story in from two to four sentences; this gave some good training in sentence structure incidentally. The effect of the Bible reading was noticeable upon both the oral and the written expression of the pupils as the study progressed.

Throughout the four weeks that the project was under way the pupils were encouraged to bring to class all references to Bible stories they could find. They kept the bulletin board filled with pictures of the Holy Land, appropriate illustrations, editorials, news stories, cartoons, and jokes suggested by Bible stories. They found pleasurable satisfaction in interpreting such newspaper headlines as: "Walls of Jericho Fall before Galli Curci's Superb Voice" and "Daylight Bill to Command the Sun and the Moon to Stand Still." The picture in "Life" of a sweet-faced motherly woman in widow's garb waving a farewell to a youth in uniform on the rear of a departing train meant something when they read underneath it "The Widow's Mite," because they knew the Bible story with similar title.

The contest, which was conducted somewhat on the plan of a spell-down, found the pupils well prepared, and they made a creditable record. Later in the year a more definite test of their memory of the stories will

be given. This should be a more accurate gauge of the value of the project.

It is perhaps quite unnecessary to state that absolutely no religious interpretation was given these stories, nor were children permitted to question their validity in any way. They were treated merely as stories, a knowledge of which is desirable because they furnish a necessary literary background. Despite the fact that practically all creeds were represented among the students, there were no protests or criticisms registered.

While the project method in both literary and practical English will not solve all the manifold problems that are associated with the teaching of English, it offers opportunity for giving that which, to the pupil at least, seems to be lacking frequently, a real purpose. There is no way to escape much that is difficult, if not tedious, in the teaching and the studying of English, but that is made infinitely more acceptable to the pupil if he can see how the training is going to function either in some creative effort over which his enthusiasm has been aroused or in some situation which he feels sure he will meet later in life. The project method offers to the resourceful teacher the means to accomplish the end desired by all—a sincere desire to improve because improvement is felt to be thoroughly worth while.

HISTORY CONFERENCE

THE STUDY OF CONTEMPORARY HISTORY

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Although the darkest hour of the World War is now upon us, nevertheless the soul of man is still illumined with the radiance of hope. Out of the travail and the sorrow, after the bleeding and the dying, he foresees a better and a wiser world. For his days of toil he expects his compensations.

Already we have experienced many minor compensations in these days of warfare. The lessons in thrift, in conservation, in co-operation, the improvement in health and the growth in serious purpose will be well-nigh immeasurable benefits. But these indirect and minor compensations are indeed a prosaic list when placed in juxtaposition to the major and direct results of the titanic struggle. Bitter necessity is forcing the nations to experiment in the problems of price-fixing, production, consumption, and distribution and the dawn of a day of industrial justice seems in sight. The inter-relationship and inter-dependence of society, the special service rendered by each class, the true complementary work of the sexes, the responsibility of the present for the future are felt now as never before. Social justice is indeed to be the spirit of the twentieth century. The creed of selfish individualism and narrow nationalism will soon have lived its petty day and the gospel of internationalism and humanity will ere long have gained world allegiance.

If one could be facetious at present one might declare that a minor compensation of the great war lies in the fact that historical associations have ceased to argue about the advisability of studying contemporary history. It is quite evident that at last unanimity of opinion prevails on this matter. If we had ever fully comprehended that education functions in life, could we have doubted that we must study the past to explain an understandable present and to guide to a better future? If we would make sure of obtaining the major compensations for the present terrible situation, we must teach all the people the true meaning of contemporary history. The teacher of the present is concerned alike with the pupil in the schoolroom, the people in the forum, the pulpit, the press and the books on the library shelves.

The exigency of the present has even quieted the old quarrel between teaching for power and teaching for utility and we are agreeing now to teach this generation the things necessary to life understanding and obtain the desired power by virtue of the method employed in the teaching.

What then shall be our methods in teaching contemporary history? Two methods of treatment of current affairs immediately suggest themselves, the first the orderly tracing of the sequence of events of a given phase of human life from past to present; second, the observance of present day affairs with an examination of the past for their explanation. The first seems to be the logical method and the one most possible in our curriculum although one observes a great tendency at present to institute short detached courses in contemporary history and to multiply what are sometimes termed "current events" exercises.

It is a pity that in many cases the term current events exactly fits the attempt. We have today in our schools too much stirring of the hodge-podge of miscellaneous happenings encouraged by the commercial activities of certain magazine companies and too little sustained inquiry into the trend of modern human affairs.

The first method of study of contemporary history, the chronological correlation of the various points of development in a given line from past to present, involves on the part of the teacher an ability to see things as a whole and to have the fundamental vision that history is a record of the development of human association and that unless that process of development is perceived the study of history is empty and useless. The ability to perceive development rests not alone in perceiving the sequence of similar events, in tracing their correlation in time, but there must also be the perception of the correlation of events in space so to speak. This perception of concomitant phenomena leads the historian to explore minutely the political, religious, economic, cultural and social fields of life when he would understand a given activity. Literature becomes for him but another window for observation in history, and geography a factor with a slow persistent, imperative pull on historical development. The correlation in time gives the sequence of events or the story of development, the correlation in space gives the perception of relationships, the law of development, the revelation of cause and effect. In studying contemporary history we must use both correlations.

In a field so vast as history one of the greatest problems is the determination of what we wish to teach. There can be but one answer to that query—We must teach the things that function in life. For instance, today, white men and red men, the brown, the black and the yellow races welter in death's quagmire "to make the world safe for democracy." A brave word this for which men die, then forsooth must you not today teach its meaning? To determine and formulate the principles of democracy, to find their origins and trace their development throughout man's record must indeed cause an Anglo-Saxon heart to swell with pride, must bind all English speaking peoples into a perfect understanding and that understanding will be the world's greatest guarantee for future peace. This Anglo-Saxon conception that all just gov-

ernments derive their power from the consent of the governed, the wonderful basis of local self-government, the creed of civil liberties, the political principles of equality of franchise and representation, the great constructive prophetic work of federation present a most compelling theme for us in the study of contemporary human affairs. Out of Oriental civilization we obtain the development of personal leadership and centralization of power, Greece gave us a democracy tending to separatism, Rome contributed imperialism and incorporation, the Anglo-Saxon brought representation and federation,—the federation that is the hope of the morrow.

What is the burden of the present social story that must be taught? To understand at all, for instance, the age that produced the platform of the English labor party one must watch the classes as they emerge in the theatre of world history. In a pagan world the patrician stood alone, the leader and the prophet; the mediaeval churchman brought his contribution to society and we had nobility and clergy. Trade made the bourgeoisie and middle class people not only voted but thought. Hard on the heels of the Reformation came the political reconstruction of society, the English, the American and the French Revolutions—but listen, one cannot stop here, the patrician leader, the mediaeval churchman, the modern trader not only each made his contribution to society but each changed society to his will, each dominated it and made it to his pattern.

This and this only makes a background for the emergence of a class created by modern industrialism, that class denominated as labor and voicing new social theories. To understand it at all one must follow the commercial, the agricultural and the industrial revolutions not only in time but from country to country. This new class presents demands for readjustment that the generation we teach must answer. What was once a cloud no larger than a man's hand on the American horizon has even here become portentous. In England the labor party is larger than here, in France it is less sane than in England, in the Central Empire it is a chained giant occasionally rattling its shackles, while in Russia the undisciplined, uncontrollable horde rides on the wings of a storm that threatens catastrophe to the world. Here is a second theme for the teacher of contemporary history.

The everlasting meaning of the conservative and liberal alignment of political parties, the continuous story of our relations with England, with France, with Russia, the slow development of the principles of international law, these are the stuff of which current history courses should be made. There is great danger in a mere teaching of current events. Oftentimes the pupil flounders in a disorganized mass of facts, precipitated upon him with absolute absence of any principle of correla-

tion, with lack of motivation and with no sense of proportion or perspective.

There is many a dangerous fallacy on the road of historical comparisons. One hears people endeavoring to compare the French and the Russian Revolutions, utterly ignoring the fact that the French Revolution was one of a cycle of political revolutions and that the Russian Revolution starts a new cycle—a cycle of industrial revolutions. In the French Revolution, France was still in the agricultural stage and the individual loomed large. In Russia the Industrial Revolution is under way and the rights of society are the points at issue.

Even that most evident similarity of our fight for neutral rights from 1793 to 1815 to our contentions of yesterday must be enlightened by a perception of the vast difference in the conditions of transportation, communication and national inter-relationships. A hundred years ago the fight for neutral rights promoted our doctrine of "splendid isolation"; today President Wilson most cleverly gives to the whole world a Monroe Doctrine whose usefulness at home is somewhat impaired, and yet we do not laugh for a waiting Old World reads surcease of sorrow in the vital principle of this New World legend.

In teaching contemporary history more than usual emphasis must be put upon historical method. The impossibility of obtaining all possible knowledge, the presence of prejudice, the falsifying of evidence for a purpose, the lack of perspective are all valuable conditions for instructing in historical method rather than reasons for omitting the study of contemporary affairs.

One may conduct current history by centering the attention of a whole class on one problem at a time, using a wealth of collateral reading for exposition purposes or one may assign one or two pupils to a problem, allowing individual reports to be made in cycles, the class notebooks summarizing in such a way as to create an orderly survey of current affairs.

The question of obtaining time for the teaching of contemporary history often arises. Time is a matter of emphasis. Let us change our emphasis so that we shall be expounding always the things that function in the present and then the problem of time for current history will take care of itself.

And the materials for the work! Aye—there's the rub? I have a vision of a work room that shall be a history laboratory—of files of books, of maps and charts, of tables filled with magazines and newspapers, and of eager child readers who fain would know of what the great world dreams, and for what they toil. I have a vision of scissors and paste pots and pens that yearn to write history and, alas, school boards are blind to my picture.

And our aim in teaching contemporary history—What shall that be? Surely not intolerance, never mere propaganda, and sweet heaven forbid that it lead to a mad race for national aggrandizement, but rather let it be for the bettering of the standard of individual valuation, for the obliteration of this crass materialism that struggles for the things that toot and the things that glitter and let it lead us one and all to the saner, sweeter, more harmonious living together of all God's people in God's good world.

THE NEED OF SPECIALLY TRAINED TEACHERS IN HISTORY.

PAUL C. STETSON, PRINCIPAL SOUTH HIGH SCHOOL, GRAND RAPIDS, MICHIGAN.

Many have the idea that anyone can teach history. The other day a teacher was applying for a position. When asked what she could teach she replied that she was able to handle English, German, and mathematics. Then the principal asked her if she could teach anything else and she replied, "Of course, I can also teach history." Many teachers seem to have the vague idea that history is simply reading and that, therefore, anyone who can read can also teach history.

In considering the need for trained teachers of history, the question arises at once, **what is involved in the teaching of history?** As a very imperfect answer to this question, I venture to reply that, if anyone is to teach history correctly, he must be able to interpret the meaning of historical epochs, incidents, and men. To do this at all adequately would require a thorough grounding in ethnology, anthropology, sociology, psychology, pedagogy, geography and history. This list may be incomplete, but it illustrates the fact that, instead of answering the question in the way she did, the teacher referred to might better have replied, very humbly, that she was able to teach anything except history.

My instructions, however, were to emphasize the need of specially trained teachers in history, and not to tell how they may be trained. If there ever was a time in the history of the public schools of the United States when trained history teachers were needed, it certainly is the present. With the world plunged into a war on such a gigantic scale as to make our most famous wars of the past small by comparison; with dynasties crumbling and republics rising and falling over night; with socialism, or rather many of the things which the Socialists of the past have stood, being in large part realized, it should be self-evident that anyone who is to be an interpreter of these stupendous events must certainly have a very special and specific kind of training.

If one is to make the history class live, he must bring to his classes a largeness of view and a scope of knowledge not required in any other subject. Sometime ago I had the pleasure of visiting the Lincoln School in New York. This school is run by the General Education Board as a model school. It is a most remarkable institution, and all of us who visited the school were agreed that the chief reason why it is such a remarkable school is because each teacher is a thorough master of the subject he is trying to teach. There is a crying need for history teachers who are masters of their subject.

Again, there is a great need for trained history teachers because, in a very important way, democracy is made or unmade in the history class. It is the crucible of the school in which must be fused all of the alien elements. No student should be able to leave a properly presented history class without being a firm believer in democracy. History, properly presented, is a record of the struggle of people against kings. One of the great forward steps in the last decade in history teaching and in history textbooks has been the emphasis on the common people as against the emphasis on kings.

In the history class, proper training on the part of the teacher would do away with bias which exists toward other countries. In the public school class rooms, after all, are formed the ideas which in after years have much to do with the shaping of the destiny of this nation. One of the reasons why there has been such great anti-British sentiment in this country is because of improper teaching in connection with the Revolutionary War and the War of 1812. If that had not been the case, there would not have burned in this country such a deep hatred toward the nation to whom today we owe our present safety and prosperity. England has given to us our language, our laws, and our customs, and yet we have taught about them as if they were still the "Hated Red-Coats." The French we have presented in our schools as being a race of degenerates, mistaking a few degenerate Parisians for the entire French race. We have allowed the clever propagandists to make us worship at the shrine of German efficiency, and in our history textbooks have taught reverence for Germany and hatred for England. As a matter of fact, had our teachers been properly trained, we would have seen in England, not an oppressor, but a country ruled by a German king, and one who was crazy at that. We would have seen in the French nation, not a country of wasters, but the thriftiest people, possibly, in the world; a people capable of making infinite sacrifices, and a race full of untold valor.

Because we have not had properly trained history teachers nor properly written textbooks, we have shut our eyes to our own faults and have had them very wide open when it came to looking at our own virtues. We have minimized our faults and maximized our virtues until

a former Secretary of State could say, and be applauded for it, "If we declare war, a million men will spring to arms over night." There never was a more fallacious statement made, but it represents quite accurately the results of improper history teaching. We have believed in the absolute invulnerability, invincibility, and infallibility of the United States. In the Chicago Tribune, one morning, was a cartoon. On one side of the cartoon was an ostrich with his head in the sand; on the other side was an eagle, and over the cartoon was the caption, "Which shall be our national bird?" Now, the plea I am making is simply a plea for the proper presentation of the facts. This country is great enough, this country is sane enough, to be told the truth about its mistakes, to have its victories tempered a little by a statement of the facts, without damaging in any way the patriotism of its people. In short, an understanding patriotism, which sees both the faults and the virtues of one's country, is apt to be more enduring than a blind patriotism, because, in the long run, if the patriotism is blind, there is bound to be a bad reaction after the inevitable awakening.

The need of trained history teachers, of history teachers with broad vision and an ability to handle facts sympathetically, was never so great as it is today. Someone has said that we are fighting our next war now. We all hope and pray that we are fighting our next war now so that there will be no other war. Out of the school rooms and out of the classrooms of this country are going to come the boys who will take the places of those who will be lost in this great conflict. They are the ones upon whom will fall the burden of the reconstruction. How important it is, then, that they shall prove to be men of clear vision; men of broad sympathies; men who are able to look the truth in the face without quivering; men without biased attitudes toward the countries to whom they owe so much; men who, through their teaching, shall realize that this great country of ours, the home of the oppressed, the goal for so many years of those who would throw off the feudalism of Central Europe, has before it a great future. We shall need men who, unafraid, can say in substance, "This is my country—I love it. I believe it has a great mission in the world. There are some things in this country which must be righted. We have some faults, as a nation, which we must look in the face and try to overcome. But, with all our strength, with all our worldly and spiritual possessions, we are going to see to it that those men who died in the great European war 'shall not have died in vain; that this nation, under God, shall have a new birth of freedom, and that the government of the people, by the people, and for the people shall not perish from the earth.'"

PHYSICS AND CHEMISTRY CONFERENCE

SOME APPARATUS POSSIBILITIES

PROFESSOR F. R. GORTON, STATE NORMAL COLLEGE.

The difficulties encountered in procuring material for teaching Physics in the small high school are not easily overcome. However, there are many articles which can be secured without any cost at all, and these are frequently as useful in certain experiments as any material which can be purchased. In the list presented below will be found many things which can be collected piece by piece by teacher and pupils, some which can be borrowed from the homes of pupils, and other articles which will be gladly loaned by dealers. In caring for such material most advantageously it is advisable to arrange the small pieces in paper boxes with suitable labels, or, what is much better, to place them in table drawers which have been partitioned into numerous small compartments. Many of them can be made to play an active part in class discussions if they are found within easy reach of the teacher.

SMALL ARTICLES

1. Nails, brads, tacks, thumb tacks
2. Paper clips of different kinds
3. Thread, cord, fishline
4. Rubber bands
5. Toothpicks and splinters
6. Pins (ass't) and needles
7. Knitting needles, hat pin
8. Cards of ass't sizes
9. Corks, assorted
10. Watch springs
11. Marbles and stones. All sizes
12. Washers, iron, brass, leather
13. Screw hooks and eyes
14. Steel balls
15. Screws, wood and machine
16. Screws from dry cells
17. Gillette razor blades
18. Lamp wicking. Straws
19. Loaf sugar
20. Tin and lead foil
21. Sealing wax and beeswax
22. Victorla needles, used
23. Spools. Kodak spools
24. Pith, elder and sunflower
24. Iron filings
26. Golf balls

FLAT ARTICLES

1. Wrapping paper. Cardboard
2. Tissue paper
3. Newspaper
4. Parchment
5. Fur, cats', etc.
6. Plates of glass, ass't.
7. Panes of glass. Photo plates
8. Cloth, wool, silk, felt
9. Asbestos
10. Celluloid films
11. Leather, thin, thick
12. Slates with frame
13. Films, cinema and kodak

MISCELLANEOUS

1. Tin cans with covers, ass't.
2. Wooden blocks, ass't. sizes
3. Glass jars, lamp chimneys
4. Bottles, ass't.
5. Strips of wood from mill
6. Small wooden boxes
7. Cardboard boxes, ass't.
8. Mirror glass
9. Burned out lamp bulbs
10. Thermometer tubes, capillary

11. Tin plate, zinc, brass, copper
12. Short pieces of boards, ass't.
13. Lamp prisms
14. Scrap lead. Use for weights
15. Paraffin. Shellac
16. Carbon bar from dry cell
17. Springs from shade roller
18. Tumblers
19. Pepper shaker
20. Hard rubber and fiber insulation
21. Lamp cord, insulators, etc.
22. Short pieces of heavy copper wire
23. Wornout files
24. Yard sticks
25. Soap
26. Shears
27. Lamp chimneys
28. Dry cells
29. Induction coils

BORROWED FROM DEALERS

1. Gas meter
2. Electric meter
3. Gas engine

4. Cream separator
5. Household hardware—coffee mill, food chopper, grinder, etc.
6. Telephones

BORROWED FROM HOMES

1. Vacuum cleaner
2. Kitchen scales
3. Opera glasses
4. Electric flatiron and toaster
5. Vacuum bottles

BORROWED FROM PUPILS

1. Electric bell and telegraph
2. Bicycle pump
3. Flutes, mouth organs, violin, etc.
4. Electric motors
5. Magnets, compass
6. Building sets
7. Telescopes, magnifying glasses.
8. Opaque projectors
9. Moving picture apparatus

A ONE YEAR COURSE IN HOUSEHOLD CHEMISTRY.

PRINCIPAL H. S. DOOLITTLE, 'SAGINAW.

To many, this topic may seem to be an incongruity, because of the utter impossibility of making any headway in the subject of household, or applied chemistry until the student has had general chemistry. I do not advocate a course in which the student gets merely a smattering of general chemistry and then goes on to the study of applications of principles which are not thoroughly understood.

There are a great many textbooks of household chemistry now on the market which are intended for the use of high school students taking chemistry for the first time. The first few chapters of each of these books are devoted to the subject of general and inorganic chemistry and almost invariably they contain so little of the fundamental principles of the subject that it is impossible for the student to get enough from them to be able to work intelligently upon the practical applications which follow.

The result of using such books is that the student gets only a mass of disorganized and unrelated facts and falls far short of any adequate understanding of chemistry as a whole; merely a lot of impressions instead of a working knowledge of the subject. I have seen a number of such courses, where the student was able to follow printed laboratory

directions mechanically and thus obtain results which, however, he would be unable to interpret because of a lack of definite knowledge of the fundamentals of the subject.

If chemistry is to mean anything at all to a student it must at least enable him to interpret the significance of most of the results which he obtains. If a student follows the directions in a laboratory manual as closely and with as little exercise of his reasoning powers as though he were using a cook book, the course is a failure. This is true, not only of any course in general chemistry but it is particularly so of a course in household chemistry. I want to state very emphatically that the course in household chemistry is not, and should never be, a mere dabbling with more or less indefinite qualitative tests upon organic substances, and obtaining results, the interpretation of which is beyond the ability of the average high school student. It can, and should be made a definitely organized course, with the proper grouping and correlating of topics so that the students need never be working upon problems about which they have only vague information. A great many of the exercises, also, must be made quantitative. In other words, there are just two essentials to the course: giving the students the kind of preparation which they can apply, and requiring them to apply it.

A course in household chemistry, then, is merely a thorough course in general chemistry with the emphasis placed upon the practical side of the subject, upon its applications in daily life and upon the study of organic compounds. To give time for the study of these extra topics certain parts of the course in general chemistry must be omitted. These are: the laws of Charles and Boyle, problems and experiments involving gas volumes, Gay-Lussac's law, Avogadro's hypothesis, the determination of molecular weights from vapor density, the periodic system and the study of all except a few of the common metals. The fundamentals of the subject which should be thoroughly learned and which form the backbone of the course are: the first three or four descriptive chapters given in any good text, the laws of definite and multiple proportions, quantitative relations in chemical changes, the derivation and use of chemical formulae, calculating, by proportion, the weight of one substance involved in a reaction when the weight of one other substance is given, valence and its application to equation writing, classification of chemical changes, acids, bases and salts, nomenclature of salts, the ionic theory, neutralization, problems involving titration with standard solutions, volumetric analysis of acid and basic solutions, the law of mass action and some of its applications, hydrolysis, reversible reactions and a study of some of the common electrolytic processes. A thorough working knowledge of all of these topics is absolutely necessary before proceeding with the applications of the subject. One can do nothing with the subject of applied chemistry until he has, at his disposal, the means of

understanding the nature of most of the reactions which he encounters, and has developed, to a considerable degree, the ability to interpret the results which he obtains.

The first radical difference between household and general chemistry comes in the application of the principles of volumetric analysis of acid and basic solutions to common problems, such as finding the per cent of ammonia in one of the commercial brands and comparing its actual cost with that of an ammonia solution of the same strength made by diluting concentrated ammonia with water. Another application of volumetric analysis made at this stage in the course is in finding the per cent of citric acid in a lemon. A little later on, in connection with the study of carbon dioxide and carbonates, a detailed study of leavening agents and baking powders is made.

As an illustration of the way in which some topic, such as that of baking powders, suggested by some part of the regular course, is followed up and studied intensively, I shall go somewhat into detail in connection with this topic. After learning the usual reactions involving carbonates and carbon dioxide, the students are asked to read some of the literature on leavening agents, particularly the Bureau of Chemistry bulletin No. 13, part 5, which gives the history of the use of all leavening agents, from the time of the unleavened bread of the scriptures to the present day. To this reference reading is added the class discussion of the subject and the study, first, of the reactions involved in the use of such leavening agents as ammonium carbonate and of sour milk and soda, then of the reactions occurring when each of the four types of powders are moistened with water. Some of the difficulties attending the use of sour milk and soda are studied and explained, the most important of which is the failure of the lactic acid to react with all of the baking soda and the leaving of an uncombined residue of sodium bicarbonate in the dough, which is changed to sodium carbonate, or washing soda in the process of baking. In connection with this, the following problem is given: how many pints of sour milk, having a specific gravity of 1.03, and containing .8% of lactic acid, would be required to react with an average teaspoonful, or six grams, of baking soda? The result is quite enlightening when it is found that approximately 1.5 pints, or three times the amount customarily used, would be required. Next, from the equations for the reactions occurring when each of the different types of powder are moistened with water, the right proportions of soda and acid salt are calculated. Finally, from these same equations, the relative efficiency of the different types of powder is computed, when the students are required to find what weight of soda and of the acid salt, with each type, would be required to find what weight of soda and of the acid salt. After making these computations, reading the Chemistry Bureau circular on "Alum in Foods," and doing the laboratory work in baking

powders, they are in a position to judge intelligently as to which is the best type of baking powder to use.

The laboratory work on this topic consists of titrating a sample of sour milk with tenth normal sodium hydroxide and computing the per cent of lactic acid present. The amount of this milk which would be needed to react with 6 grams of sodium bicarbonate is also computed. Another laboratory period is spent in testing the standard brands of baking powders for all of the common metals and acids radicals and thus classifying each of them into one of the different types. The value of a large amount of available carbon dioxide in any baking powder is duly emphasized, but this ingredient is not estimated quantitatively.

The detailed and intensive study of leavening agents which I have outlined is not one of the particularly strong parts of the course. Many of the following topics I consider of greater importance and worthy of greater emphasis. On many of them the students are required to spend more time and study, but in the few minutes allotted to this discussion I can only outline them briefly. None of them are topics which are too difficult for the average high school student, and none of them are treated less thoroughly than the topic of baking powders. In connection with the study of water, the student prepares and softens permanently and temporarily hard water, comparing the amounts of soap solution used to form a lather with definite volumes of the softened and unsoftened water. An analysis of a sample of drinking water is made in which the total solids, hardness, chlorine and organic matter are determined quantitatively, and qualitative tests are made for ammonia, nitrates, phosphates, lead and iron. The class work in connection with this topic consists of a careful study of the interpretation of results of the analysis, reactions and reference reading.

The students are required to make an analysis of soil in which they test for all of the metals and acid radicals commonly present. The same tests are made upon the ash of plant leaves and stems, also upon bone ash, showing experimentally that the same substances which are at one time in the soil, occur later in plants and finally in the bones of animals.

Immediately following the study of these inorganic compounds come the different classes of organic substances; hydrocarbons, alcohols, aldehydes, acids, esters, fats, glycerine and soap, carbohydrates, proteins and alkaloids. This side of the subject is given a great deal of emphasis and forms one of the most important parts of the course. In the laboratory, after an experiment on fermentation, an analysis of vinegar is made, in which the total solids, ash and acetic acid are determined quantitatively and a number of qualitative tests are also made. After fermentation, the subject of preservatives naturally follows and of the wealth of material on this subject, several references are read and discussed in class, particularly the Chemistry Bureau bulletins on "Sulphurous Acid

and Sulphites," "Boric Acid and Borates," "Salicylic Acid and Salicylates," "Benzoic Acid and Benzoates" and "Formaldehyde." In the laboratory, the students learn to identify each of these preservatives, along with several others. In all, they have to perform nine laboratory exercises in connection with this topic.

Along with the class study of esters, fats, oils, saponification and cleansing agents, there is laboratory work in the preparation of common esters, an analysis of olive and salad oils, making soap from cottonseed oil and sodium hydroxide, a quantitative analysis of soap, an exercise in finding the composition of one or more of the standard brands of cleaning powders and an analysis of bluing.

While the carbohydrates and the process of inversion are being studied in class, the students are using the Fehling's test in the laboratory and determine the invert sugar in an unknown solution quantitatively by titrating with Fehling's solution. This is followed by the usual tests on starch and an exercise in extracting and making jelly from the pectin of a carrot.

In connection with the class study of the proteins and alkaloids the students learn a number of tests for proteins and for the elements contained in them, extract gluten from flour, theine from tea and caffeine from coffee. While working on tea and coffee they also determine the difference in chemical composition of coffee and tea made by long boiling and by boiling for only two or three minutes. The difference in amounts of tannin present is easily shown with ferric chloride. A partial analysis of cocoa is also made at this time in which all of the common ingredients are determined quantitatively.

The subject of milk and milk products is one which is given considerable emphasis, both in class and in the laboratory. The total solids, ash, fat, and casein are determined quantitatively and all common preservatives are tested for. The Babcock method is used in getting the per cent of fat and the Hart centrifugal method, which is very similar, is used in finding the per cent of casein. Lactic acid in sour milk, the composition of condensed milk, the fat in cream, ice cream and cheese are all determined quantitatively and the distinction between butter and oleomargarine is made. At this time, also, the subject of food values is taken up in class and from tables of food values, the students learn to calculate balanced rations and to arrange a menu scientifically.

The last subjects in the course are: headache remedies, flavoring extracts, dentifrices, dyes and dyeing, testing for dyes, the removal of stains and a study of textiles. Each of these forms the basis of considerable work and study, both in class and in the laboratory.

In all, this course includes 53 laboratory exercises which are not commonly given in any regular high school course in general chemistry and yet which are entirely within the range of the ability of the average

third year high school girl. Of these exercises, 24 are quantitative and 29 are qualitative. Of the 24 quantitative exercises, 13 involve gravimetric analysis, 6 involve volumetric analysis and 5 involve both. Also, in these 24 exercises there are 8 distinctly different applications of titration of acids with bases, 6 determinations are made with the centrifugal machine, 2 titrations are made with silver nitrate, 2 with Fehling's solution and one with potassium permanganate solution.

Every student learns thoroughly all of the laws and theories of general chemistry except those involving gases, is required to solve every type of chemical problem except those on gases and learns the use of structural formulae in dealing with organic compounds. As to references: each one reads the greater part of 12 books, representative of which are Olsen's "Pure Foods," Woolman and MacGowan's "Textiles" and Duncan's "Chemistry of Commerce," about 20 bulletins, typical of which is Helmø's "Foods and Food Values," also a large number of smaller pamphlets and references to single topics.

Besides a lot of valuable impressions about the scope and usefulness of the subject, they also acquire a store of definite information about the chemical composition of substances common in daily life. I would be very much surprised if any student who had taken this course would ever buy a proprietary remedy of any kind without first asking what it was composed of, or would pay fifty cents for an ounce of sal soda, perfumed and sold under a fancy trade name as a shampoo, or would fail to be suspicious of Hamburger steak or milk that did not spoil after a reasonable length of time in hot weather. In these ways, the course aims, not only to impart information about the subject of chemistry and about its applications, which will contribute largely toward the health and well being of the student, but to give, at the same time, a well balanced course which, in so far as they may be separated, is both practical and cultural.

MATHEMATICAL CONFERENCE

GROUP RECITATIONS IN MATHEMATICS

MR. L. D. WINES, ANN ARBOR, MICH.

It seems to be the general opinion among our older teachers that the character of the students in our high schools has been slowly but surely changing during the past decade or two. I am not going to try to prove or to explain why this change has taken place, but many are sure that the general average of ability has been decreasing and that the quantity and quality of work has fallen, also. At the same time, the work of the teacher has greatly increased, and he has to work about twice as hard as formerly to accomplish anywhere near as satisfactory results.

The situation has been frequently discussed by the teachers of our high school, and many plans have been suggested and tried which we hoped might improve the scholarship of the schools. We have tried requiring more written work in daily recitation as well as more written examinations, and our teachers have nearly exhausted their nervous systems looking over lists of examples and exercise books. Even these devices have not seemed to improve things because the ability to crib is easier to develop than the ability to do honest work. For one year our school board employed a special teacher to whom any backward pupils could go or be sent for individual help in their studies. This was in addition to the assistance that three session room teachers were giving these pupils. At another time all the pupils who failed in the same subject were placed in a separate section to go over the work the second time. Both these plans failed—the last one because we attempted to do the required amount of work for the grade for a semester, during a semester.

After these failures, we returned to our old system of re-classifying our poor students, removing one after another, giving them over to another teacher of a different subject or a lower grade of the same subject, and then not passing about fifteen per cent and conditioning about as many more of those that remained.

We all know that this method of conducting a high school is not only a failure, but an extravagant method—an extravagance not only of money, but of time, and an unquestioned abuse of many of our boys and girls who have a right to as good an education as they can obtain with the ability they have inherited.

We are not all equally quick mentally, and to insist that the slow keep pace with the fast is as foolish as to expect a draft horse to go over the ground as rapidly as a race horse.

The effect of such a system has been to finally discourage a large per cent of our students, and as a result many have given up school to begin life with a handicap they did not deserve, and which they may never overcome. That the system is largely to blame for their leaving school is unquestioned, for I am sure we all know scores and scores of pupils whose desires for an education were sincere, and whose financial ability was ample, but who could no longer endure the humiliation of the unequal competition.

Recently conditions in our school seemed to so shape themselves that our principal felt warranted in allowing the mathematics department to try a plan for regrouping some of our slow students, and its apparent success makes me willing and anxious to tell you about it, in hopes that some of you will be induced to try something similar to it, and that we may together work out a plan that will be of great benefit to many students in our schools.

It is not my intention to enter into the subject of group recitations in general at this time, but only to indicate in a few words what is meant by the term, and to tell you briefly the result of our experiment.

From what I have been able to learn about the subject, I should judge that there are two systems or methods in general use.

In the first of these methods it is usual to separate all of the students of a certain subject into three sections, the first section to contain the brightest students; the second section the students of average or normal gifts and the third section the remaining members of the class. When this method has been employed in a subject like geometry it has been found that the first section could complete all of plane and solid geometry in one year, the second section all of plane geometry, and the third section four books of plane geometry. This method can be used in a school large enough to require four or five classes of the same grade in a subject. The second method is one that is adapted to use in a small school, and in practice is usually conducted about as follows: All the pupils in one class are divided into several groups of about five pupils each, and each group has a leader who is a member of the group. These groups are variously constituted, and the personnel of the group can and should be changed frequently. A leader for each group is selected from day to day, even the poorest student of a group being obliged to take his turn. These groups are all supposed to be reciting at the same time, in different parts of the same recitation room, and under the general supervision of one teacher. The various groups may be using the same or different propositions and problems at the same time, the object being, however, to have all the groups finally finish the required work of the

year, though some of the groups may have done more than the minimum requirement. Not all the work of the class in this system is done in groups. Some days the groups are united and recite as one class. Teachers who have tried this method assure us that much more is accomplished by each pupil than under the generally prevailing system. It can be easily seen that as the teacher visits each group a closer personal contact is possible, and hence more individual work can be done.

Last September we began our year's work with four sections of geometry 1. Soon it became apparent that there were four students in each section that could not possibly carry the work, and on investigation it was found that fourteen of them could be organized into a separate section at an hour when I could teach them. These fourteen students represented fourteen different grades, and failed in the regular class for nearly as many reasons. We began work with this group at the beginning of the book, and did as much each day as we possibly could; but however little or much that was, we did it thoroughly, and apparently everybody felt at the end of the hour that some definite progress had been made. We did not start out to reach any definite part of the book by the end of the semester, but rather to teach each pupil how to use his mind to the best of his ability. The class was conducted in the freest and most familiar way possible, and both student and teacher made a successful effort to beat Job at his own game. Every proposition was proved several times, and with different figures, and when it was proved the last time you would have thought a star pupil was giving an exhibition performance. To say that the class as a whole was satisfied and happy is simply to tell the truth. Many times a pupil who persistently refused to undertake to recite when a proposition was first taken up, would later in the hour go to the board and recite with good personal satisfaction. Two of the fourteen were allowed to continue in the regular class at the same time they were reciting in the special section. As a result, one passed Geometry 1 at 85%, and the other, with a little outside assistance, passed at 80%. Had they continued in the regular class only, both would have failed in their work. Three others had made such progress that in this second semester they were allowed to take up Geometry 1 in a regular class, and at present are doing their work. The remaining nine were required to continue in the special class and it is hoped they will complete the first three books by the end of the year.

The general atmosphere of the class seemed quite different from that of the regular classes. Apparently the absence of the better and superior students from the special section relieved its members of many embarrassing moments. They were not constantly reminded of their infirmities, and were not required to sit quietly and listen to the demonstrations of propositions and the solutions of problems of which they

knew little or nothing. The teacher was also greatly relieved not to feel obliged to ask them to try to recite or to answer questions they did not understand. They were also saved the embarrassment of low reports sent to the principal and their parents; and escape discipline in the class, office and home.

Not only were the students in the special class benefited, but the regular classes were also much helped. You can easily understand that the average recitation in the regular classes was much improved, that each student was enabled to recite much oftener, and as a result much more thorough work was done by the class as a whole. Another good point about this system is that it is a continual spur for the capable student who is lazy to do his work, knowing that the special class is ready to receive him at any time. This fact, however, is never referred to in any of our regular classes.

As soon as the special class in geometry was seen to be a success we organized a special class in Algebra 1. It also fell to my lot to teach this class, and between these two special classes I soon learned a host of things about teaching that I had never acquired before. Naturally the algebra class taxed my resources more than did the class in geometry, as the students were younger and had spent less time in the high school. We only undertook to learn such facts of the algebra as were absolutely necessary and at first it seemed as though we would never get started. You will hardly credit the statement, but it took us seven and one-half hours to learn these four definitions: the definition of an exponent, the meaning of a positive integral exponent, and the definitions of a coefficient and a power. And then for days we were continually recalling these definitions so they would not slip away from us. By the end of the semester two of the algebra students had done well enough to warrant their entering the regular class on trial. At present they are doing fairly well.

This second semester we have continued these two special classes and have organized a third one in Algebra 2.

As to our action in the future regarding special classes in mathematics or even in other subjects, I am not able to speak. I am sure all the mathematics teachers are in favor of them, and hope their use will be continued. But if they are continued some means should be adopted to organize them at the beginning of each semester, and not delay them for three or four weeks after the opening of school. In other words, we should know at the time of registration just the pupils who are to make up the group for special work. Of course, we all know that there is a better way than we have used to arrive at the correct classification of all our students, but whether the public mind is ready for it I am not sure. That intelligence tests should be made of all our pupils many do not question. If these tests be made, and all students graded as they should

be, it would be a great benefit not only to each individual pupil but to the whole school. It has been estimated that \$40,000,000.00 are annually wasted in the U. S. by pupils repeating the same grade from one to four or more times. Of course, this way of organizing our school might at first require a few more teachers to handle the special sections, but after a while the brighter pupils will have been saved at least 25 per cent of their time, and the teachers thus relieved can be used to teach the extra sections required. It might be observed, also, that a teacher can teach a little larger section if the pupils of low intelligence quotients are organized by themselves.

It seems to me that in this field the next advance of moment in educational method is bound to develop. The necessity of a thorough education of the rising generation is becoming more and more important. Questions relating to the choice of studies, vocational guidance, the grading of pupils, retardation, juvenile delinquency, sub-normals and gifted children are pressing hard for consideration and solution.

For a teacher to determine what is best to do in the case of each pupil is of no less importance than for a doctor to determine what is best for his patient, or for a farmer to determine whether a certain cow is fit for his dairy. The doctor determines by a blood count, the farmer by a milk test, and why should not a teacher determine by an intelligence test?

The time allowed me does not permit a consideration of the broad question of the great necessity of our educating every boy and girl in this country to the utmost of his capacity. When the Franco-Prussian war was over, it was not over for either the French or the Germans, and when this world war is over it will not be over for us. This our beloved country is now passing through the pains of a new birth, and when it emerges with its swaddling clothes drenched with the best of its blood, we will see the necessity of fitting every citizen to do his utmost to preserve the priceless heritage of our forefathers. We, too, must have no illiterates, no poor, no slums. We must "proceed to control erratic parenthood wherever it is found," to stop the "excessive increase of the inferior," and reverse the "deficient increase of the superior."

Thank God we are about to abolish drink, and close our jails. We must next take the necessary steps to make our eleemosynary institutions of less and less use, and to develop a people that not only believe in democracy, but are willing to practice it, and capable and ready to defend it against the barbarians of the world.

THE VALUE OF MEASUREMENT TO TEACHERS OF HIGH SCHOOL MATHEMATICS

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My part in this afternoon's program is to tell you what I can of tests for the measurement of the products of teaching algebra and geometry, and to discuss their use. With your permission I will begin by putting on the board in diagrammatical form a definition of education, which will serve as an outline to all that I wish to say to you.

Education is	from where	toward	where
the process of changing children	they are		we think
			they ought
			to be.

Prof. Thompson, of the University of Colorado, says that education is the process of changing children from where they are toward where we think they ought to be. That is, the definition emphasizes the fact that education is a complex process which extends through many years; that it has for its purpose the making of changes in children; that when we start working with a new class, we should try to begin where the children are and strive to change them toward the place where we think they ought to be.

For efficient teaching three types of activities are necessary:

1. The setting up of definite objective aims.
2. A determination of where the children stand in relation to these aims.
3. Control of the process by which the children are changed from where they are to where they ought to be.

For the purpose of this discussion the three types of use to which educational tests may be put may be briefly expressed by the three words "aims," "knowledge" and "control." I wish to discuss each of these with you.

If education is to be efficient, the goals to be attained must be made definite. This means that expression of aims must be in objective quantitative terms. Now, unfortunately, teachers of mathematics, in spite of the definiteness of their subject, have not been accustomed to think in objective terms. I have been much interested in reading the articles now being published in *School Science and Mathematics* on "Valid Aims and Purposes for the Study of Mathematics in the Secondary Schools," by Alfred Davis of the Francis W. Parker School, Chicago. Nowhere throughout the Feb-

ruary and March installments of his article does Prof. Davis condescend to reduce his aims to an objective basis. He states, for instance, that

"Mathematics develops the power of concentration. The success of a student depends upon his early gaining of the power to concentrate his mind on a given problem. To work with the highest efficiency the mind must be wholly absorbed with the task in hand, the nerves tense, the body in an attitude that suggests attention and alertness. The pupil whose mind goes wool-gathering in the midst of important work and who is easily distracted by his surroundings is a failure as a student. This power to study is developed by mathematics as by few other studies."

Please notice that these are dogmatic statements. Precisely similar statements are made by the teachers of every subject. Work in Latin or science, wireless telegraphy or wood turning, also depends on concentration for success. Yet in spite of his statement that power to study is developed by mathematics as by few other studies, for proof I find only "The New England report says," "Prof. Bagley says," "Prof. Moritz says," "Prof. Lodge says." To the statement that concentration is necessary for successful work in any field, no exception can be taken, but if the cultivation of the power of concentration is a valid aim for the teaching of mathematics, a definite and objective statement of the *degree* of concentration which should be attained by a 15 year old student is absolutely essential. Probably the best measure of concentration is the amount of work of a given type that can be done in a given time. Compare, for instance, the vague, general statement made by Prof. Davis with the definite goal set up by Prof. Rugg that "at the end of one year of training in algebra, a student should be able to perform the indicated operations in the examples represented by his Test 1 at the rate of 10 1-3 examples per minute." By means of Prof. Rugg's definition a teacher can tell whether or not he is succeeding in attaining the desired goal, but Prof. Davis' formulation is valueless except to indicate that concentration is to be one product of the teaching of mathematics.

In similar fashion Prof. Davis says that

"Mathematics trains in accuracy. Probably no other subject demands this quality to so great a degree. There is no opportunity to cloak errors with results 'nearly right.' If approximate results are sought the limits of error are known. Pupils can judge from this and make their own corrections. Again, carelessness in the securing of data and in the drawing of a figure may vitiate the whole problem, no matter how perfect the reasoning. Furthermore, neatness is an essential part of accuracy and both should be the conscious aim of both teacher and pupil. They should be emphasized more than at present in our teaching of mathematics."

That accuracy is desirable in any type of work worth doing at all will be readily admitted by all. That mathematics makes for greater accuracy than chemistry or the use of a milling machine is a debatable question. Many teachers of science would applaud Prof. Davis' statement that accuracy should be emphasized more in mathematics teaching than at present, but the crux of the matter is how much more. Again compare Prof. Davis' vague, general statements with the definite, objective goal that "at the end of first year algebra a student should be able to work 10 1-3 examples for minute of the type represented by Rugg's Test 1, with an accuracy of 93%." A concrete statement of the precise degree of accuracy to be attained makes possible both the determination of where the pupils are at any given point in their course and of how great the change is that must be produced before they attain the desired goal.

It is no part of my duty at present to say what the aims of teaching algebra and geometry should be, but I can state with great assurance that it will be difficult to make the teaching of mathematics efficient until every aim has been made so definite and objective that measurement is made possible. Mathematics teachers do not seem to realize that in the various discussions on the value of mathematics in our high school, the crucial point is not whether these studies tend to develop imagination, logical reasoning, etc., but whether the development produced by the teaching of those subjects is greater or less than the development produced by other subjects. As long as goals are vague and indefinite, the students, themselves, have no means of determining their own success or failure. They are dependent upon the marks given by the teacher. When, however, the goal is embodied in a standard test, the entire situation is altered and the pupil, himself, can appreciate the work to be done. The pupil can determine himself his relation to the goal and can appraise the success or failure of his own efforts to reach the goal.

The supreme value of objective definiteness of goal is probably to be found in the fact that while it defines what the product of teaching should be, it sets the teacher free to attain the goal in her own way. It thus provides for variation and experimentation, without which evolution of more efficient methods is impossible. From the point of view of the yardstick man, no statement of aims can be accepted which does not result in a measurable product, and I venture to prophesy that in days to come courses of study will be formulated entirely in terms of a series of standard tests. Prof. Rugg's tests are such a course of study for the mechanical work of first year algebra and similar tests are possible for every product of any value.

The second type of service which tests can render to the teachers of mathematics is to give him knowledge of the relation of the pupil to the definite goals which have been set up. Every teacher knows that pupils differ, not only in their inborn capacities, but in their abilities to profit by

instruction. The results of such educational measurements as have already been made prove beyond question that variation in the abilities of individuals is the supreme conditioning factor in educational efficiency. Education which recognizes differences in pupils and makes corresponding adjustments of work will be efficient. Education which trains the pupils of a class as a uniform group will be inefficient, in spite of the excellence of the course of study, the ability of the teacher, the amount of time given to the subject, or any other of the factors to which schoolmen give so much attention.

It is impossible, however, for a teacher of 30 pupils to know by intuition all the varying capacities and abilities of her class. There is but one way to secure this information; that is by proper measurement. Tests should be used for three different purposes:

1. To determine the general intellectual level of the various individuals in the class.
2. To determine their individual development in those abilities which are essential to the work of the class.
3. To make sure that each individual has those peculiar mental powers which are called for by the particular subject.

I do not know how familiar you are with the tests which are available for measurements of this type. You will find a descriptive list of available tests in a chapter in Part II of the Seventeenth Yearbook of the National Society for the Study of Education. If I were to teach a class in geometry next year, the very first day I would give an Opposites Test, the Kansas Silent Reading Test, and the Trabue Language Scale. These could be given in one class period and scored by the students. I should rank the pupils on the basis of their scores in each of the three tests and take the average rank as the true rank of the individual. I should expect that 70 per cent of the pupils would be correctly placed by these marks. That is, the pupils who made high scores in the three tests, I should expect to do good work in geometry, the pupils who made low scores I should expect to have trouble with geometry. I could be confident that not more than two pupils out of ten would be assigned unjustly to their relative places in the class. That is, if a class of 40 pupils were given their marks for their term's work on the first day of the term on the basis of the scores in the tests proposed, there would be but 3 pupils whose marks would need to be changed at the end of the term.

The second day I would give certain educational tests. No student can do the work in algebra successfully without proper ability to add, subtract, multiply and divide. To determine which pupils were below standard in arithmetic I would give, of course, my own tests in the four operations, using either the Series B tests or the Cleveland Survey tests. Others might choose to use the Woody arithmetic scales. I should also want to measure each individual's ability to read, and for this purpose I would use Thorn-

dike's Scale, Alpha 2. Then I would devise a test in the ability to express thoughts in words. Unfortunately there is no test of this sort that I can recommend to you at present.¹

In addition to these measurements, I am sure that before long there will be available a series of tests to measure such special abilities as "power to generalize," "power to recognize logical relations," and "power to recognize likenesses and differences," but here again I am unable at present to recommend any specific tests of this type.

If I were in a large high school, I should section my students on the basis of their relative rankings in the tests. One section would contain the very able children, one section the average children, and the other those of limited intelligence. I should arrange for the boy who was weak in addition, or the boy who could not read, to take intensive drills in these subjects until he was up to standard, and I should pay particular attention to all assignments involving abilities of these types to see not only that such pupils received extra attention, but that they give extra time to this phase of their lessons. My able section I should expect to cover the ground rapidly and I could give them a larger amount of supplemental work. My average section I should expect to cover only the regular courses. My poor section would proceed very slowly but very thoroughly, particularly at the beginning. I should expect them to understand new ideas with difficulty and to make adjustments slowly. I should let them take their own time, but I should insist upon very perfect work. This section would not be expected to complete the regular course, but would drill upon the minimum essentials of the subject.

This brings us logically to the third type of measurement work which the teacher of mathematics will need to make. For just as soon as a teacher begins to work in this objective way, it becomes imperative that he know something about the relative importance of the different items of the course of study and of their relative difficulty. That teaching will be most efficient in which the items of the course of study are most carefully graded. Now, it is not possible to determine the relative difficulty of two theorems in any other way than by direct measurement. However, through co-operation, a group of teachers as large as the group present at this conference could determine in a single year in terms of the time taken to learn, or the percentages of those failing, the relative difficulty of each theorem in geometry or each topic in algebra. Also, by an analytical study of the subject it would be possible to determine the relative importance of the different elements of the course of study. The type of factoring or the theorem of geometry which is used again and again in all subsequent work is of much more importance than one which occurs but seldom. Teachers of algebra and teachers of geometry need to make tabulations similar to those by which

¹An organization test, published by H. A. Greene, of the State University of Iowa, since this article was written, serves the purpose very well.

Ayres determined the one thousand commonest words in the English language. Here is a vast field for research which will pay big dividends in increased efficiency of teaching to those teachers with sufficient professional interest to give the necessary effort and time.

One cannot teach in this definite way without wishing to know whether or not his efforts are more or less successful than those of his fellow teachers. Herein lies another value of standard tests, for when tests are given under uniform conditions, comparisons from city to city, or class to class, or from year to year, are at once made possible. Where do you suppose your class would stand among the 27 schools whose scores in algebra are reported by Rugg, or among the 63 schools whose scores in geometry are reported by Minnick? Would it not be a satisfaction to know that your results were better than those of the average teacher, or if, on the other hand, at the end of a year's teaching your pupils have less ability than those in the average class, is it not your duty to determine that fact and to take steps to prevent its happening a second time? Remember, standard tests do not create the conditions which they reveal. At present some of you are working very effectively; others are doing work which is very much below any standard which can be considered as satisfactory. The extent to which you desire to bring your teaching efficiency up to standard is a measure not only of your professional pride but of your real value as a teacher.

Comparative testing is of value from another point of view. As has already been pointed out, the educational process is exceedingly complex. For success there must be co-operation between educational workers. Teachers of the second year must build upon the work done the first year. For satisfactory results there must be co-operation all along the line that the changes produced may be cumulative, not scattering. Standard tests represent the most effective and satisfactory means of supervisory control.

Even if your results prove to be of standard quality, you will find that suggestions of possible changes in methods will frequently occur to you. Without tests, the only means for determining whether or not such changes are desirable is biased opinion. Tests, however, make it possible for the teacher to determine by direct experimentation which of two methods is the most effective. For instance, Prof. Edmonson told us yesterday that there are 20 schools in Michigan which are giving courses in algebra in the 8th grade. Some of you immediately asked him in regard to the results, but he was compelled to admit that he did not know what effect the teaching of algebra in the grades was having. At the same conference one of the other speakers expressed his conviction that no algebra should be taught until the 10th grade. How are such differences to be reconciled, and would you not feel that a definite statement based upon exact, impartial measurement would be a more reliable guide for you to follow, than merely personal opinions of the two or three superintendents whom you happen to

know? In the future, all such administrative policies will be based upon scientific experimentation under controlled conditions.

A study of the marks given by mathematics teachers shows that a large percentage of the pupils fail. Have you ever asked yourself why individual pupils fail? Every child who fails, fails for a definite reason. You know very well that if your automobile suddenly stops running because it is out of gasoline, you cannot make it go by imagining that the trouble is with the spark plugs, even if you buy an entire new set of plugs with which to replace the old. If you overhaul every portion of the engine and put it in perfect order, the engine will, nevertheless, refuse to run until the precise cause of its failure is found and remedied. So with the various individual failures in your classes. The student who cannot solve a simple equation because of his inability to clear of fractions, will not be helped by instruction in removal of parentheses. Each student must have exactly the help he needs to overcome his particular cause of failure. Appropriate diagnostic tests, such as Monroe's research tests, enable a teacher to locate and remedy an individual's weakness in the shortest possible time. I cannot, however, take the time of the conference to discuss in detail the various tests which are available for measurement work in algebra and geometry. I have already told you where descriptions of them may be found.

If I have been at all clear in what I have been saying, you will have recognized that tests are to be used to study the educational process itself; not for the purpose of marking pupils. Standard tests are not examinations, and the results of standard tests are of absolutely no value except to the person with sufficient intelligence to make use of the knowledge gained. Some people seem to think that standard tests are a new-fangled kind of magic, that the giving of tests is in some manner expected to benefit the children. Nothing could be farther from the truth. Just as the possession of a thermometer, a stethoscope, and a case of medicine, does not make a physician, so the giving of standard tests does not make a teacher. To the able teacher, however, the information gained from standard tests is of greatest value, for it enables her to know precisely what is to be done, precisely where the student stands in relation to the desired goals, and precisely what steps she must take to bring about the desired changes.

By way of conclusion I wish to take just a few minutes more to discuss the general situation. For, today, the study of mathematics is on trial, but many mathematics teachers do not seem to realize the fact. Whenever mathematics teaching is criticized, either in the public press or in our educational journals, mathematics teachers who reply are often quick to ascribe wrong motives to their critics and to totally misinterpret the purpose for which the criticisms are made. One of your speakers, yesterday, said that "whenever an educator felt that he was in danger of dropping out of public notice, he made a sensational attack in the public press upon the teaching of mathematics." Now, during the past two or three years forcible

criticisms of mathematics teaching have come from such men as Dr. Flexner of the General Education Board, and Prof. Snedden of Teachers College, Columbia University. Neither of these men has any need to "keep himself in the public eye;" neither has made an "attack" upon mathematics teaching. Both of them, however, have for many years been weighing the relative values of the various subjects in the curriculum and the judgment of both will have weight with very many superintendents.

It is foolish for mathematics teachers to try and avoid the issue. As judged by the percentage of failures, by the unrest of the pupils, by the feelings of parents, by college entrance examinations, or by the opinions of the teachers of mathematics themselves, mathematics teaching in our high schools at present is far from being satisfactory. It does no good to point to the value of mathematics as a subject, nor to the distinguished men who have acknowledged their indebtedness to their training in mathematics. The real question is in regard to the failure of mathematics *as it is now being taught* in the average high school. Universal protests against existing courses and methods are being made from one end of the country to the other, and this dissatisfaction is finding expression in the modifications of courses of study. These are being made, *not by mathematics teachers*, but by superintendents, by universities, and by others who have the say as to what the required subjects shall be. In the past mathematics has been a "protected" subject, but I wonder if you recognized in the careful, guarded statement of Prof. Edmonson before this section yesterday, that the university is serving notice that hereafter this "protection" is to be removed. In a few years mathematics may be wholly an elective subject, and when, as at present, from 40 to 60 per cent of the high school students report mathematics as the subject which they like least, it is easy to prophesy what the result of removing the "protection" of university requirements will be.

Can you not read the handwriting on the wall? Mathematics teaching today is being weighed in the balance and found wanting. In the case of Latin and Greek decision has already been rendered, Greek has gone and Latin is going. In the case of mathematics, however, judgment has not yet been made. There is still time to secure definite, positive information that the subject is, or is not, of value. It will not do to say "we believe," "we think," "we feel." The world is calling for proof and proof means measurement. I wonder how many of you are definitely planning to give a standard test to your classes at the close of this school year.

At the close of the discussion following this paper, a motion was passed requesting the president to appoint a committee of three to arrange for a co-operative investigation to determine standards in algebra and geometry in Michigan.

BIOLOGICAL CONFERENCE

WAR AND THE PHYSIOLOGY TEACHER

MISS GRACE ELLIS, GRAND RAPIDS

This war has opened new opportunities for almost every group of teachers. For the history teacher it is an opportunity to develop the ethical side of patriotism; for the domestic science teacher it is the great opportunity to finally demonstrate and clinch the value of her subject in such teaching as shall be the best kind of practical patriotism; but for the physiology teacher it is a greater opportunity than for any other, for hers is the possibility of teaching so that the country she loves and serves shall always be the better for it, a real, constructive patriotism.

Democracy is more than a form of government; it is a great social organization, in which the individual counts for everything he is, and adds to, or takes from, the social unit just according to his own personal qualities. I believe that our public schools have a great part to perform in making the kind of a democracy which shall make the world safe. Our products ought to be *ideals* and these ideals will determine the quality and the destiny of this, and perhaps other democracies. In fifty years this country will be what the children of today have made it. And their ideals of living and in part their morals, will be what we, the physiology teachers, have inspired.

A recent poster, brought out by the findings of the army examining boards, pictures Uncle Sam standing before the large government buildings devoted to the bureaus of plant and animal industry and watching the stream of men rejected from the army recruiting station near by. As he reads on the banners of this array of the physically unfit, "bad eyes," "tuberculosis," "bad teeth," "preventable defects," he says to himself, sadly, "But I never thought of the folks." Pigs and cabbages have had more attention than the men who grew them.

Unfortunately, this is a truthful commentary on the condition of the country at large. We say that human life is priceless, but here, without war, we are needlessly wasting tens of thousands of lives every year, together with efficiency, earning capacity, and the joy of living. To win this war we must conserve our health, vigor and efficiency; we must do health work, both personal and public, as never before.

War, waste and conservation are words that are constantly in our ears these days, but it takes more than food to win a war, more than money; it calls for men and women and resources. We cannot expect to win the war with a nation of young men who cannot pass even a moderately hard physical examination. Nor can we expect to maintain

an army, once we get it, by physical seconds left at home to provide food, munitions, money and supplies in quantities never before known. In such a struggle as we now face every sick or inefficient person who cannot do more than take care of himself is just that much dead weight. In the same way any person who is only 50, 60 or 70 per cent as efficient as he might be lacks that much of doing his part, his rightful share, of the necessary work. Keeping well does not mean merely avoiding illness; it means being 100 per cent fit.

Even from the money standpoint it is obvious that the conservation of man is profitable, for it is estimated that the value of the Nation's lives, its vital assets, capitalizing their economic product, is three to five times as great as the value of its lands, waters, minerals, and forests combined, its physical assets. As our physical capital is estimated by the census at over \$100,000,000,000, this makes our vital capital, considered merely as productive machinery, three to five hundred billions. This is the estimate of the committee of one hundred on national health, of which Prof. Irving Fisher of Yale was chairman. This means that not only is the conservation of man a vital problem bearing on the perpetuation of the glory of the Nation, but it is an important economic problem at the present time—the saving of a loss now estimated at \$3,000,000,000 per annum. Tuberculosis alone, a preventable disease, now costs the Nation \$1,000,000,000 annually; typhoid fever is estimated by Dr. George M. Kober, dean of the medical department of Georgetown University, to cost the country over \$300,000,000 each year.

Is not now the time to stop the leaky faucet of national vitality? We cannot put forth our best efforts either in war or civil life, while we are laboring under such unnecessary vital losses. Real headway in this means better attention to child hygiene, the education of mothers in raising better babies into stronger and healthier children. It means medical inspection of school children so that they do not have to spend four years in doing the work of three; it means physical education and a knowledge of hygiene; it means better home sanitation, so that our state escapes tuberculosis and typhoid, and those unforgivable evils of child life called children's diseases. It means more than a perfunctory activity of health officers, and a trained co-operation of intelligent citizens, possibly even, it means the damming of the streams of defective protoplasm now flowing into and out of our various state institutions, and of which Miss McKinnie, in her eugenic survey of the state, estimates that 9,000 feeble-minded carriers are at large.

In the light of all the facts which the long list of men rejected for army service has rendered so evident, is it not time to preach that the first service any one of us can render our country is to keep well?

In a report presented in February of this year, at the meeting of the Principals of Secondary Schools, Mr. Jesse B. Davis made this state-

ment: "No other department of our public school system has so shown its weakness during the war crisis as the department of physical and health education. The records of our rejections from voluntary enlistments and by our examining boards under the draft laws are such that we must hang our heads in shame when we realize how we have neglected the development of sound physical bodies throughout this land. *More time must be given in every school in the country to training in health and hygiene* and to the development of physically strong men and women. No longer can we afford to neglect this all important function of education."

I am quoting this because it was emphasized in different ways, over and over again in this meeting, and a government pamphlet along this line has since appeared. The pamphlet I was not able to obtain, but it will soon be ready for distribution. The Public Health Report of March 8, one of the weekly issues of this publication, which is sent out by the United States Public Health Service, in an article on School Inspection in the Extra-Cantonment Zones, contains these expressions: "Encouragement is also given to the teaching of personal hygiene in the schools," and "It is recognized that to effect any great improvement in the sanitary conditions of the country it is necessary to educate the school children in the principles underlying public health." This is in regard to zones immediately about the cantonments for the safety of the soldiers. What about the safety of the people always residents?

When the University of Michigan dropped physiology from the list of required subjects because it was so poorly taught, this state almost lost one of the greatest agencies for the advancement of healthy living. It was no longer in the high school curricula because the schools do not provide much more than the University requires, and so we go on in the vicious circle. Let me tell you an old fable and the same fable as I came across it the other day revised up to date. This is the old fable: Once upon a time there was a city with a street running along a cliff. In dark and stormy weather so many people were injured by falling over the edge that the citizens gathered together to see what they could do about it. They decided to build a hospital at the foot of the cliff so that the injured might receive immediate attention.

Now it chanced that a great physician visited their land, and the inhabitants showed him their hospital with great pride. But he, looking up at the cliff, said: "Wouldn't it have been cheaper in lives and money to build a wall of protection along the cliff?"

THE FABLE REVISED

Once upon a time a great country went to war and needed her strong men to fight her battles. But when her sons were called together only half of them were found fit to do battle, the others being deficient in

health and lacking in physical strength. "What shall we do?" said the people. "Unless our men are strong in body they will lose the battle. Let us ask Congress to appropriate a great sum, and build a hospital where they may receive treatment, and be cured of their diseases." And this Congress approved. But some said: "A pity it is that great sums of money should be spent for this purpose now, whereas small sums spent a few years ago when these were boys would have made this unnecessary and saved the country's manhood from this blight of ill health and inefficiency." And the people said, "Yes, truly; a poorer nation, but a wiser one, will we be when this war is over."

Is it not evident today that health is necessary to service, and the preservation of health is of vital importance in order that we may pay for our privileges as members of society?

It is primarily the school officials and the public to whom the appeal must be made. Public health is purchasable, and if we can show the public that it costs much less to do the necessary work to preserve health than to pay for illness, then physiology and hygiene, along with other means of preserving it, will come into their own. At present the sanitary experts estimate that there are some 2,000,000 persons constantly sick in this country. The average annual preventable loss of time through illness is eight or nine days for each of the 25,000,000 to 30,000,000 workers in this country. Some industrial firms demand a medical examination and provide free medical service for their employees, to reduce to a minimum their losses because of illness and absence of workmen. If it pays private firms to go to this expense, can it not be shown that it would pay the country at large to take at least the precaution of teaching how health may be maintained?

Is it not in part that our national ideals of health need to be revised? We have not reached those of ancient Greece, and at the present time those of Japan and Sweden are beyond us. With the superior knowledge at our command our health ideals should be beyond those of any other age. These ideals should not stop with the doing away of disease and degeneracy. They should include muscular development and moral integrity. The young are the "Keepers of the Temples" whose splendors are but the reflections of the souls they house. Only the thoroughly healthy person "rejoices like the strong man" to run the race of life. Said Emerson, "Give me health and a day and I will make the pomp of emperors ridiculous." The sun has risen on our day and we confront the pomp of emperors. Shall we or they be ridiculous? The answer lies for the immediate future of our nation, and for its remoter life, in the ideals of living which we hold.

There are a number of agencies now at work in the dissemination of hygienic knowledge, some of which might possibly assist a campaign for the teaching of physiology.

One of these agencies is the anti-tuberculosis societies. I have some pamphlets here which are used by the Grand Rapids Anti-Tuberculosis Society in the schools. A woman in the employ of the Society visits the schools and distributes these pamphlets and tries in various ways to get the children to do the "health chores" every day. A certain number of these credited to the pupils enable him to become a "Modern Health Crusader." Whether this is successful or not will depend on the parents and the teacher. Where it is urged in the school a large number of children will do the amount of health chores necessary to receive the certificate of enrollment as a "Crusader." The formation of these health habits is quite as valuable as the acquisition of the "three R's."

Another of the agencies at work to improve the health of the nation is the Insurance Companies. These companies are trying to lengthen life and reduce illness in this country by various means. Several of them have, in recent years, established departments of conservation, and as this affects the "pocket-book nerve" of the persons concerned, it is likely that it will make some impression. To save human life as a matter of money alone is, perhaps, a sordid thing, but the life that is saved is just as valuable as though the motive were entirely altruistic. Medical examinations, civic health movements, and instruction in hygiene by widely distributed pamphlets have all been part of their program. Is it possible to make any use of this propaganda for the teaching of physiology?

The attitude of the public toward the discussion of disease, sanitation and kindred topics has greatly altered in the last few years. Almost every paper and popular magazine has at least an occasional article on these topics. It is practically certain that the curricula of our schools will be made over as one of the results of this war. Is it feasible to ask the press of the state to take up the subject of teaching hygiene in a rejuvenated curriculum?

One agency which ought to aid us, it seems to me, is the Public Health Service of the Government. Do we care more for our boys who are abroad than for the others who cannot go because of preventable defects? Is it not time that the work of this service should be extended to care for the citizens as a group? I am going to be registered next month, and for the first time in my existence my country is going to take an interest in finding what I can do for its service. As a near-citizen I feel that the extension of its health service would be the thing I would most desire to help in doing.

Is it not a matter for the authorities of this great state university to consider? No greater influence than theirs is exerted on the public school curricula of the state. And if physiology has not been well taught in the past, there is no reason why it should not be well taught in the future, if they will place the weight of their request on the school authori-

ties. I am reminded as I speak that of four persons who have helped me in the teaching of this subject in the last seven years no one has been educated in the University of Michigan. Three have come from smaller colleges and one from Columbia University, and all were required to study the subject as a part of their work.

And finally, we must realize that it is largely a problem for us as individual physiology teachers, as to what effect the war will have on our teaching. Will it quicken us to deal with essentials? Shall we clothe the dry bones with living flesh, and pervade the whole with the spirit of knowledge for service? If we are to do this we must face the problem of sex; in regard to this I am going to quote a portion of the introduction to the book on special physiology I use with my girls: "This little book was designed to be a chapter in a physiology used by high school students. Such a chapter cannot at present—and perhaps not ever—be wisely incorporated in the text, but this fact does not obviate its necessity or limit its usefulness. It is a long time now since Huxley said of physiology texts that if they were to be inspected by visitors from another planet, or by a later age, it would be concluded that man had been a sexless animal. We have finally learned that sex and its manifestations are not subjects to be avoided, but rather that they are to be treated scientifically and openly, so that from them as well as the lesser facts of life we may gather inspiration for better living and cleaner thinking."

My personal creed in the matter of physiology teaching is expressed in what I have just read and in the statement which is the introduction to the text book we use in our classes: "It is the purpose of this physiology to make some answer to the perennial question, 'What knowledge is of the most worth?' with the intent that the students of the Central High School may be physically efficient to meet the inevitable difficulties and bear the burdens that come to all of us. The source of all the solid, durable satisfactions of life is the indispensable foundation of health. Domestic happiness and professional efficiency, personal usefulness and honorable careers in the community, productive citizenship in any capacity, are conditioned on clean bodily vitality. Neither as individuals nor communities shall we reach our highest standard of usefulness or prosperity until we realize that the basis of the art of living lies in the intelligent care and use of the human body."

FOOD ACCESSORIES, THEIR NECESSITY, AND THEIR DISTRIBUTION IN FOODS

PROFESSOR JAS. B. POLLOCK, UNIVERSITY OF MICHIGAN

Within recent years there has come within the domain of physiology the knowledge of a new type of substances necessary for the complete nutrition of animals and human beings in addition to the carbohydrates, fats, proteins and minerals which have long been known to be necessary. Owing to the fact that neither the chemical nature of these new substances nor the exact part they play in nutrition is known, no wholly acceptable name has yet been proposed for them, but the terms *food accessories* and *vitamines* have been used for them as frequently as any. The study of these food accessories has also led to a new emphasis being placed upon the mineral nutrition, and to new knowledge as to why proteins in different foods are not all of equal value in proportion to their quantity and their digestibility.

The knowledge of food accessories started with a study of the disease known as beri-beri, a disease of great antiquity and more or less common in countries where rice is the chief diet. Eykman, in 1897, concluded that beri-beri resulted from too large a consumption of polished rice; that is, rice with the pericarp and aleurone layers removed.

These two layers are common to all the cereals and in the milling of wheat they go into the bran. Eykman also found that birds fed on polished rice developed a disease analogous to beri-beri, and called this disease polyneuritis. He also discovered that birds sick with polyneuritis were cured of the disease by feeding them rice polishings. In both birds and human beings there is a nerve degeneration, emaciation, paralysis and lameness, and finally, death, if the diet causing the disease is persisted in. Beri-beri and polyneuritis then seem to be due to deficiency of some factor contained in the rice polishings, or outer layers of the rice grain. What is the nature of this deficient substance? It was at one time suggested that it was an organic compound of phosphorus, but it was later found that the actual factor contained no phosphorus. Numerous workers took up the problem, and have experimented on pigeons, chickens, rats, guinea pigs, and even the larger domestic animals such as swine, etc., most of this work being done since 1911. The conclusion was finally reached that beri-beri and polyneuritis are due to the deficiency in the diet of a substance entirely different from any hitherto recognized as necessary to nutrition, and Casimir Funk in England suggested the name *vitamine* for this class of substance and also suggested that there were probably four different deficiency diseases of human beings each due to the absence in the diet of a specific *vitamine*. These

diseases he named as beri-beri or polyneuritis, scurvy, ricketts and pellagra.

In the United States McCollum and a group of workers at the University of Wisconsin have done considerable work in analyzing the nature of the dietary factors and on the basis of their work have named two food accessories: 1—Fat-soluble A, and 2—Water-soluble B. The latter is the one whose absence produces the disease beri-beri in human beings, and polyneuritis in animals experimented upon. It is soluble in water and while widely distributed in nature, in the cereals it is largely concentrated in the embryo or so-called germ, the little plant existing in the seed and in the aleurone layer which lies next to the seed coat, and which is mostly removed by the high milling of modern machinery. Hence, polished rice and high grade white flour are deficient in this food accessory and animals and human beings whose diet is too largely made up of those cereal preparations will sooner or later suffer from a specific form of malnutrition.

As compared with the water-soluble B, the fat-soluble A is less widely distributed in nature, and is associated with certain natural fats, both animal and vegetable, but not with all such fats. It is almost completely absent from the pure preparations of animal and vegetable fats and oils, as lard, tallow, cotton-seed oil, olive oil, corn oil, etc., but is very abundant in butter or the fat of milk, in the fat of egg yolk, in the fat of certain internal organs of animals, as kidney, heart and liver. It is specially rich in cod liver oil. Nearly all seeds are deficient in it, but leaves of vegetables are relatively richer in it. It is abundant in some oil-containing seeds, but remains in the residue on extracting the oil, the extracted oil being free from it.

McCollum believes that the absence of the fat-soluble A produces a specific deficiency disease of the eye, xerophthalmia, characterized by thickened, inflamed lids, degeneration of eye, and finally total blindness. Besides the specific diseases produced by the absence of the fat-soluble A and water-soluble B, their effects on both growth and body maintenance are very marked. Both must be present in a certain proportion in every diet capable of maintaining the body weight, but they are especially necessary for growth. Hence young animals must be abundantly supplied with them in order to make a normal growth. With animals experimented upon, McCollum found butter to the extent of five per cent of the total diet sufficient for both growth and maintenance when the diet also contained all the other factors necessary for nutrition. Owing to the wide distribution of water-soluble B and the limited distribution of fat-soluble A, the latter is much more likely to be lacking in a general diet, and its distribution in nature indicates those foods most capable of supplying it, namely, butter, egg yolk, whole milk and fats of internal organs on the animal side, leaf vegetables especially on the

plant side, and some seeds, as soy beans, which has more fat-soluble A than the cereals, but all seeds tested are deficient in this food accessory. Butter substitutes or margarines made with the oleo-oils or beef fats have a good value in fat-soluble A, but those made with free plant oils as cotton seed, cocoanut oil, etc., are very low in this vitamine. However, a brand of butter substitutes made with the whole meat of the cocoanut instead of the free extracted oil gave a good value of the fat-soluble A. The nut butters generally have been found to be low in this value.

McCollum does not believe with Funk that either ricketts, scurvy or pellagra is caused by the deficiency of a specific vitamine, but rather that they are due to some maladjustment of the factors necessary for complete nutrition: 1. Mineral or inorganic constituents. 2. Poor quality or inadequate quantity of proteins. 3. Shortage of one or both of the food accessories, fat-soluble A or water-soluble B. 4. Presence of toxic constituents of food, as aluminum or colloidal silica, or gossypol, a toxin found in cotton seed. Also wheat is believed by McCollum to contain a small amount of some toxic substance.

He also believes that scurvy produced experimentally in guinea pigs is due to toxic substances absorbed from the digestive tract, and possibly produced by putrefaction there. A group of investigators in England, however, believe in a specific vitamine for scurvy. The British army in Mesopotamia has suffered considerably from this trouble, when for several months they were not able to get fresh fruits, fresh vegetables or fresh meats as a part of their diet. Sour limes, potatoes, especially raw, onions, spinach, dates, raisins and tamarinds all have a high anti-scorbutic value. Dried seeds are also very low, but on sprouting, their value as a preventive of scurvy increases greatly. It has been suggested that dried seed such as peas, etc., may be used by an army but sprouted just before using as food.

In the case of ricketts and pellagra their relation to a possible specific vitamine is still more uncertain than is scurvy, but it has been found that in the wasting disease of infants known as marasmus an extract of pancreas has proven to be of great value.

The relation of the vitamine to methods of food preservation, drying, canning, etc., is of great importance. As indicated, the anti-scorbutic properties of fresh vegetables and fruits are lost in both drying and canning. Therefore, foods preserved by either of those methods are very low in ability to prevent scurvy. The water-soluble B is not destroyed at the boiling temperature of water for 26 hours, but is destroyed by a temperature of 20° higher than the boiling point, a temperature probably equalled at canning factories in the canning of vegetables, and it is specially likely to be destroyed in alkaline solutions.

The fat-soluble A is not destroyed by boiling, nor by passing live steam through butter for two and one-half hours.

To sum up, we may say that

1. In addition to fats, carbohydrates, proteins and minerals, another class of substances is necessary for the nutrition of animals and human beings, substances of which neither the chemical nature nor the role in nutrition is definitely known.

2. These substances have been called food accessories, vitamins, food hormones, etc., and their absence leads to the development of certain definite diseases, while their presence is necessary for both growth and body maintenance.

3. Up to date certainly two and possibly three of these food accessories have been distinguished: (a) Fat-soluble A, whose absence leads to eye-degeneration and blindness; (b) Water-soluble B, whose absence produces beri-beri or polyneuritis; (c) A possible vitamin whose absence produces scurvy of sailors and soldiers on diet in which fresh fruits, fresh vegetables and fresh meats are absent or present in very limited quantity.

4. The question as to whether rickets and pellagra are due to the absence from the diet of a definite vitamin is still a disputed one.

5. The substances in fresh fruits and vegetables which prevent scurvy are easily destroyed by drying or by heating. This would seem to indicate the advisability of eating some fruits or vegetables raw. Citrus fruits, cabbage, onions and germinated seeds are the richest sources of this food accessory.

6. Fat-soluble A is not destroyed by boiling nor by exposure to live steam for two and one-half hours. It is richest in butter, egg yolk, cod-liver oil, and leaf vegetables. It is always deficient in seeds and cereals, but is more abundant in oily seeds than in cereals. It is not found in the extracted oils of plants or fats of animals except cod liver oil.

7. Water-soluble B is widely distributed in both plant and animal foods, and is not likely to be lacking on a varied diet, but may be deficient on a diet chiefly of polished rice or highly milled wheat or other cereals. It is stable at the boiling temperature for water, but is destroyed at temperatures of 120° C, especially in alkaline solutions.

8. When foods are preserved by the application of heat, it is desirable that the temperature used should be the lowest that is adequate for perfect preservation. The vitamins will be retained thereby in largest measure.

COMMERCIAL CONFERENCE

TEACHING BUSINESS CORRESPONDENCE

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May I tell a little story of salesmanship at the beginning? A good deal of our work is related to salesmanship, and the story will have more than one application, I promise you. A manufacturer of my acquaintance, at the outbreak of war, found his plant in an unusually fortunate condition, and was able to increase his operations and to take care of the extraordinary government demands in better shape than the majority of his competitors. One of the chief reasons for this fortunate condition was that he had invented and installed a machine that helped him to find out the time spent on the job, in other words, to determine accurately the cost of his manufacturing operations. I am not sure whether you know it or not, but Mr. Hurley, when he was chairman of the Federal Trade Commission, asserted over ninety per cent of manufacturers did not know how much it was costing them to manufacture. That means that these chairs and desks and electric lighting equipment and building materials that surround us today, and these clothes and shoes that we wear, are very possibly made by manufacturers who have priced them merely by estimating the cost, or by adopting the prices of competitors, or by faulty systems of cost keeping.

The manufacturer of whom I speak, however, had accurate data and had in consequence systematized his plant to avoid waste, so that he was enabled to perform the maximum service for our government in its hour of need. He attributed this situation in large part to the mechanical device I have spoken of.

Now it happens that, although he has tried for some time to market this cost finding machine, he did not succeed until the sales manager and the sales force learned to concentrate the minds of the prospective customers upon what this machine would do for them rather than upon its mechanical perfection. The sales force was under strict orders, for instance, not to take the mechanism out of its case until after the sale, for the customer's mind would be so concentrated upon springs and gears and mechanism, that while he might admire this perfection, he would lose sight of the thing he wanted to buy; namely, the ability to conduct a successful manufacturing business. You may remember that Dr. Samuel Johnson understood this principle of salesmanship. When he was helping in the auction of the brewery business of his friend, Mr. Thrale, he exclaimed,

"We are not here to dispose of a parcel of vats and casks, but to dispose of the possibility of growing rich beyond the fondest dreams of avarice."

Dealing with this much controverted subject of teaching business correspondence, I might with greater safety, like the salesmen of my friend the manufacturer, confine myself today to talking merely of results, and of the direct means of obtaining results. We are interested in the way of running a class in this subject successfully, in the technique of teaching, but if you will bear with me, I want also to take the machine out of the box and to show you by what principles the inclusion of this subject in our curriculum is justified, and how it relates itself to established theories both of composition teaching and of education.

Let us raise the question very seriously, "Is business correspondence a fit subject for the curriculum?"

The natural answer, and perhaps in the long run the best answer, is that in a commercial course the student should write on commercial subjects; that if we grant the utility of the commercial course, it is but natural to teach this subject. Our analysis can, however, go deeper than this, as we shall see.

My first assertion is that we are teaching composition and business; that is, both the technique of writing and subject matter.

Are we teaching composition or "grammar?" That is, are we teaching people to write or are we teaching correctness in sentence construction, vocabulary, paragraphs, spelling, etc.? When we ask the business man what he wants of our graduates, he says, "For heaven's sake, teach them to spell. And teach them grammar; they don't know any grammar." Now there is undoubtedly a vast need of correctness, and this applies to college graduates in part, and not only to high school graduates. But I have never found it possible to teach correctness in a vacuum. It can be taught, I believe, only by arousing the student's interest in what he is writing.

May I remind you that the teaching of composition in America has undergone great development in this direction during a generation? When I studied "rhetoric" in Amherst College in 1901 and 1902 under John Franklin Genung, we had even as freshmen a good deal of book instruction and not very much writing. That was all very well for some of us who knew how to write correctly to begin with, but it was not the best system for the average freshman. Later when I taught illiterate boys in a large preparatory school, it didn't take me long to discover that a large amount of writing and a small amount of doctrine was the best prescription; while most of my energy was spent in the first place on whipping up their interest in their writing to the point where it ceased to become a loathsome drudgery, and in the second place in giving them an amount of instruction, by means of correction on their papers, proportional to the incorrectness they displayed. But here was my great discovery, as a "green" teacher,"

and it has determined the course of my composition teaching ever since, namely, that the amount of incorrectness increased as the student's boredom increased. An ounce of effort in developing interest was worth many pounds of labor in correcting manuscripts. Needless to say, interest in subject matter did not produce results of correctness in writing without a vigorous effort being made by the teacher to connect the two.

Later still, in my graduate work at Columbia University, where I had the privilege of being assistant in succession to George Rice Carpenter, William Tenney Brewster, and Charles Sears Baldwin, I came in contact with the main stream of reform in composition teaching and learned to study more carefully the psychology of the writer, both trained and untrained. "Give them things to write about that they are interested in," said Professor Carpenter; and, "Nobody ever learned to write unless he was interested in his audience."

What should be the proportion between the amount of composition teaching and the amount of instruction in correctness? This is a question of need. The teacher must make a savage attack upon incorrectness, must force the students to work like slaves if necessary, to root out their bad habits and to teach them fundamentals. But how is this attack to succeed? Only by getting them tremendously interested in the work they are doing. This interest cannot come if students regard their work merely as exercises.

The play spirit, the spirit of voluntary activity, must be aroused. This can be brought into being most successfully through competition, and in the case of the student learning to write, this means competition with other members of the class, but above all, competition with his audience.

Here is the key to the whole matter. Students learn correctness and composition in order to produce an effect on an audience.

My second assertion is that the form of composition in which commercial students should be trained, is business letters, the universal form of business composition, the basis of all other forms of business composition. In discussing reasons why the business letter is suitable for work in composition classes, let us relate it first to the fact that students like to make things, and second, to the fact that the business letter is persuasion.

Students like to make things. When I studied manual training in the high school, I made joints and found it very dull. The modern student of manual training learns to make stools and chairs that can be sat on and finds it interesting. Now wherever serious trouble occurs with composition methods, it is probably because the compositions produced are like nothing on sea or land. The student feels that he has poured his energy into an exercise and has nothing to show for it when he is through. Do not think I mean we should strive primarily for finished technique. Finished technique can be acquired only by the mature and practised writer. We are striving

to produce an educated boy or girl. But we must work with and not against the current of the student's natural desires. Moreover, this is the only way that anybody, mature or immature, ever learns to write.

In the second place, the business letter is persuasion, and persuasion above all other forms of discourse can be *taught*. All the art of rhetoric is founded on the teaching of persuasion. From the day when the Sophists first took money for teaching the demagogues how to persuade the folk in the market place, down to modern courses in argumentation and debate, more thought has been put on how to write persuasion and more useful rules and suggestions have accumulated around it than around any other form of discourse. This is natural, for a large part of our life, and most of our social life, is spent in persuasion, in trying to get other people to do something for us or to like us well enough to tolerate us. Nearly all that we learn about how to get along with other people, or the fine art of living in society which we acquire through precept and example, is persuasion. This emphasis on teaching persuasion does not, of course, diminish the value of the aesthetic content in education, for there is nothing so persuasive as beauty.

The story of salesmanship given at the beginning of this paper illustrates another principle that can be taught, and that adds much to the effectiveness of the persuasive compositions written by our students; namely, "Write from the point of view of your audience, consider their needs and interests rather than your own."

It need hardly be said that business letters are a satisfactory form for composition classes from the point of view mentioned a little while ago, that is, for their value in arousing the interest of students. From an experience of nine years in teaching the subject, and of thirteen years as a teacher of composition, I am able to agree with those numerous teachers who find that the human interest of the problems, and the possibility of turning out recognizably good letters based on them, not less than the evident relation of the topics to the daily necessities of the business man, awaken a vigorous response from students. It is an interest which carries them successfully through the rigorous discipline in correctness which must go with the rest of the instruction; "must," I say, for the students know well enough that though slipshod work may be tolerated in the school or in the home, it has no place in the field of business. The teacher is armed with an unanswerable argument when she says, "This letter may show a knowledge of the facts, and possibly your reader would understand you; but it would never get him to do what you want him to do, because he would despise a writer who could not spell or punctuate, and who made mistakes in grammar. The office manager would fire you if you kept on writing like this."

One reason that persuasion is so teachable is that it depends largely on arrangement. It is of vast importance, in handling an audience, to decide

what to say first, second and third. For example, the one rule which students in argumentation and debate always leap at, and which throws a flood of light on their writings, is the one showing them how to manage an unfriendly audience: "Agree with them at the beginning, and wherever else you can."

Persuasion, in a word, is a form of discourse splendidly subject to rules. A little precept will go further toward securing visible results from the majority of students than in any other kind of discourse. And this is very important, because students like to make things, and they will work for us and do the things we want, if we can teach them to make things.

We must teach composition—that is, technique. But must we teach business—that is, subject matter? Are we teachers of commercial subjects loading ourselves with a burden beyond that which other teachers carry?

No, all teachers of composition must teach subject matter. In elementary classes, it is only very rudimentary subject matter, such as one needs for purposes of conversation; but it still has to be taught. Class discussion on the value of a moving picture theatre in a certain town, will fertilize the compositions that follow, by teaching students the main ideas connected with the topic. If students know a good deal about any topic, they can write on it without class discussion; but there are not many such topics.

Moreover, teachers of composition realize the value of stimulating interest in worth-while topics, of increasing observation, and of enlarging the student's range of thought and experience.

Who can understand style, in any degree, without understanding subject matter in some degree? Who can understand Milton without knowing that he was a spokesman of the English Renaissance, with a passion for beauty, and a spokesman of Puritanism, with a passion for justifying the ways of God to man? Who can understand Addison, unless he realizes that he had undertaken to reform the sons and daughters of a corrupt generation, that he was a parson in a tie-wig?

In high school or in college or in the grades, correctness and fluency go hand in hand with an interest developed through some degree of grasp; technique and subject matter must be taught.

The question of teaching subject matter in business correspondence is a question of what topics to select for letters. Let us call them problems, each to be solved by proper treatment in a letter. By a proper selection of problems, and by class discussion, students can gain acquaintance with a considerable range of business ideas. These problems will be concerned with distribution, because the human element is more prominent here than in production. This element it is which makes distribution much more difficult than production, and an understanding of distribution much more necessary to the students in our commercial courses than an understanding

of production. The letters of business are mainly concerned with problems of human relations.

These are relations of service, of service between the retailer and the consumer, between the wholesaler or manufacturer and the retailer.

May I say that I believe there is no economic study more necessary to American life today than these relations, no topic more universal and none so little understood, either by the public or by the distributors themselves? The ideals and methods of similar types of production used to be part and parcel of elementary education; the cobbler making a shoe, the housewife at the loom or the wheel, the smith under the spreading chestnut tree, the farmer at the plough, all manufacturers, all engaged in production, have had their nursery rhymes and have left their mark on more than one branch of the curriculum. But with the revolution of economic life in America, the withdrawal of production from the daily observation of most of us, the increased specialization in production, and the consequent increased importance of distribution, there has gone no appropriate education. The operations of the hardware man and the grocer are less known to us than those of the smith and the farmer; they are also, probably in consequence, less known to the hardware man and the grocer. Our distributors are not trained specialists as our producers used to be. But their function is no less necessary to our nation's life, and no less necessary to be understood by you and me.

In our course in business correspondence, we have the privilege of teaching sympathetic and imaginative understanding of human needs. That is very well worth study, I think you will agree. A friend of mine, manager of a State Street department store in Chicago, had a letter to write to a customer who had claimed a defect in a silk waist, and had been tactlessly handled by a subordinate. I could tell you in some detail what a splendid man my friend is; but you would feel it all if you read his letter, and saw with what skill and courtesy he proved the store's real desire to give service, avoided making a careless and wasteful adjustment of the trouble—one which would encourage unjust complaints—and finally, avoided needless condemnation of the members of his own organization. The rules of composition by which such results are obtained are not unworthy elements in the education of our boys and girls.

We can teach analysis of these human problems, and the habit of analysis is perhaps the mental trait most valuable in later life. Analysis, and sympathetic, imaginative understanding of human needs, form the secret of executive control. If we wish our boys and girls to have the vision that fits them for high places, if we wish to give our best to our students, we can hardly discover better qualities to inculcate than these.

As students throng our commercial courses in increasing numbers, shall we offer them less than our best? Shall we be content with an education into which we have put a content less than lies in our power to give?

The future of democracy demands that intelligent training, a training which comprehends its purposes and shows the worker the meaning of his task, shall fall to the lot of all members in the community. The devotion and enthusiasm of commercial teachers is the best augury for the success of their share in this program, which is full of the deepest significance to American education.

WHAT THE HIGH SCHOOL OWES THE COMMERCIAL STUDENT WHO CANNOT GRADUATE

AN OUTLINE

SUPERINTENDENT T. J. KNAPP, HIGHLAND PARK

Introduction:

Apologies for any emphasis that may appear.

Explained on the basis of intense convictions and on the knowledge that others have been doing the things noted below.

Presupposed:

1. Real commercial department in the high school.
2. Pupils who cannot graduate.
3. That the high school owes all pupils something of what they want.

Discussion:

I. Who cannot graduate? These are divided into those who cannot graduate for

- (a) Intellectual reasons;
- (b) Physical reasons;
- (c) Financial reasons;
- (d) Imaginary reasons.

(Any of these reasons must be accepted as final unless they can be removed by the school authorities. This division applies generally to children, but adults should, of course, be included if they can be inveigled into the school.)

II. The school owes them the same as it owes those who will graduate. But, it must pay faster because of the shorter period of payment.

(a) Keep incentive before them to remain in school (from the elementary grades).

(b) Teach thoroughness as far as you can.

(c) Train in desirable habits.

(d) Train in a proper attitude toward tasks. (Have students know what they ought to do when they enter offices.)

III. (a) The school owes such students an advertisement of its intention and ability.

(b) We should advertise this from the eighth grade, or earlier, urging the one year course, at least, emphasizing the money value of English, showing that the success of the one year course depends upon individual ability and exposing the three to six months fallacy.

IV. (a) Teach such students English, spelling, penmanship, letter writing, oral composition, business applications written and personal use of phone, filing devices, stenography, typewriting, bookkeeping, dictaphone, stencil, telegraphy and so on. Of course, not all of these, but the ones best suited to the individual student's capacity and needs.

(b) Don't hesitate to make an intensive program, even though it disturbs the even tenor of the day for the teacher. For instance, a student may spend one-half day in typewriting and one-half day in stenography—instruction and progress must be largely individual.

V. (a) Train in responsibility. Establish a standard that would eliminate the cheap help idea.

(b) Fix in the student a determination to give complete satisfaction to his employer, as a stepping-stone to realizing his proper ambition.

VI. (a) Get a better position for him than he could get for himself.

(b) Follow him up and see that he improves with time and that he has opportunities to better his position.

VII. Results to the school.

(a) There is a considerable advertising value to such activities. Credit comes to those who pay what they owe. The school thus secures an improved respect by which pupils are attracted.

(b) This policy shows something of the duty of the school to all pupils. This may result in the establishing and maintenance of a general employment bureau of graduates and non-graduates of all departments. Every student who leaves the school should be a part of the school's subsequent responsibility.

Resumé: "What the School Owes the Students Who Cannot Graduate"

1. Keeping them in school.
2. Finding their capacity.
3. Putting them on their own feet by individual advancement.
4. Stressing English and its commercial value.
5. Permitting intensive progress.
6. Securing positions, etc.
7. Following up those who leave.
8. Training in habits of thoroughness, proper attitude and standards, and preparedness for the office situation.

GEOGRAPHY AND PHYSIOGRAPHY CONFERENCE

COMMERCIAL GEOGRAPHY FROM THE REGIONAL POINT OF VIEW

PROFESSOR R. D. CALKINS, CENTRAL MICHIGAN NORMAL SCHOOL

My conception of the unity of geography rises in rebellion at the division of geography into the parts that are implied by the use of such terms as mathematical, physical, political and commercial geography. Such words hark back to the time when the early facts of geography were being accumulated, and were so classified because the relationships which now unite all these diverse facts into a connected science were not then known and no better basis for classification existed. I have little sympathy with the all too prevalent notion that geography is a hodge-podge of facts drawn from every science and field of knowledge, and that any body of facts can be lifted bodily out of the larger body of facts and relations, which today constitute geography, and be thus studied separately and apart, as is implied by the term "Commercial Geography."

It is, however, a condition and not a theory which we are facing, and the fact remains that there *are* courses in many high schools known as courses in "Commercial Geography." Whatever they may be called, the far more practical question has to do with how they shall be organized and taught, so as to accomplish the end most to be desired.

I suspect that Commercial Geography found its way into the high school and maintains its place there in response to the almost universal popular demand that education shall be practical and utilitarian, or shall have a bread-and-butter value. I am not out of sympathy with this point of view, but there is a grave danger that in our eagerness to teach things in the school which shall later in life be found to have practical value, we shall forget the needs of the boys and girls here and now. I must not become so interested in what my boy is to become eight or ten years from now that I forget the process of his becoming. In other words, the end of education is not knowledge, but growth and development, and the subject matter used is far more important when viewed as a means to this end than when viewed as an end in itself.

I feel that the average superintendent and high school principal believe that commercial geography is in the high school curriculum for the very practical purpose of giving a knowledge of the great raw materials of trade, the processes by which and the places in which they are prepared for use and the commercial routes over which they are trans-

ported to market. The most direct and certain method of accomplishing this result seems naturally to be the organization of that subject around the commodities and products which enter so largely into the world's trade. If much of this work has not already been done in the grades, then high school geography should do all of this; but it should do far more.

In these strenuous and trying times, when every form and type of civilization is being tried and tested by the fires of war, something more is demanded of high school geography than that it merely teach commercial commodities and products and the processes by which they are prepared for use. When we are wondering whether the individuals which compose the great democracies of the world are going to stand the strain of war, because they are intelligent enough and clear thinking enough to see the issues involved, or whether they are going to "blow up" as the Russians have done, because they cannot think far enough to see the consequences of their own acts, it behooves us to consider well the end and purpose of every subject in the school curriculum. Shall we ask high school students of geography to study commodities and products, commercial and industrial processes only, or to consider also some of the more fundamental relations and issues which arise from particular peoples and nationalities inhabiting certain definite regions and types of physical environment? It is out of such relations that arise the issues of national life and death, such as are at stake in the world-war now waging, and it is with such relations that high school students should be given some opportunity of dealing before they meet them in actual life.

Commerce, as I see it, is the exchange of ownership and the transportation of goods and commodities between different parts of the same country or between different countries. It is a mental response or adaptation which men have devised to meet and satisfy the diversity of needs and wants arising out of the diversity of occupations caused by the response of different groups of people to varying conditions of physical environment. As a consequence, there has resulted a most wonderful specialization of industry and production throughout the world.

The inter-dependence which such specialization implies could not exist were it not for the efficient machinery of transportation that has been developed. Without transportation the world would soon fall back to a condition of society in which each community or family group would have to be its own butchers and bakers and candlestick-makers, if they did not even return to a savage state in which all of their wants were supplied by hunting them in nature. Indeed, the best test of the efficiency of transportation is the degree to which it permits a people to specialize in the production of things which they and the region in which they live are best fitted to produce. With cheap, quick transportation, California is thus able to produce fruit for a whole continent; Argentina

and Australia, beef and mutton for a hemisphere on the opposite side of the equator; and Brazil, coffee for the whole earth.

If commerce and trade grow out of the various ways in which diverse peoples living under the different conditions of environment gain their living from their surroundings, then to understand commerce and trade and the commodities exchanged, such peoples must be studied in the midst of the particular environments in which they live. Commerce and trade are therefore the culminating topic in the study of the geography of any region. For this reason the regional organization of commercial geography is the more natural, the more logical, and pedagogical, as well as the more valuable, because it furnishes a background and basis for understanding the great world happenings and events which grow out of geographic conditions.

By the regional organization of commercial geography I mean such a study of a region that the student will see the causal relations of its position, form, size and surface, to its climate, and then of climate and soil to vegetation, and of vegetation, and all of the preceding factors, to occupations, distribution of population and commerce or trade.

Such a treatment of commercial geography does not and should not exclude the study of commodities and production processes, but subordinates their study to that of the regions in which they are produced. If an intensive study of commodities is desired, then make it in the region which is so well fitted either physically or humanly that it ranks high in the production of that particular commodity. Later it may also be studied comparatively, both as to quantity produced and process of production in other regions.

I have mentioned production processes and in passing wish to emphasize one point concerning that topic. It is a phase of grade and high school geography that I believe is generally overdone. It is not the business of geography to teach technical or mechanical processes of production. Such technical processes find a legitimate place in geography only when the process itself is determined by the geographic conditions of the region in which it is carried on, or when the process is such as to determine the localization of the industry or commodity studied. The kind of production processes that legitimately belong to geography is well illustrated by the nitrate industry of Chile.

After the location and cause of the desert in which the nitrate once accumulated has been explained, and after it has been shown how the existence of a soluble salt, such as nitrate of soda, above the water table in the ground is due to the arid climate of the desert, the response which people make to the existence of such a valuable deposit is the next logical and natural question to be raised. The student should then work out that the crude nitrate as dug from the ground contains so much insoluble and waste matter that it is not profitable to transport it in the

crude state to its distant markets in the northern hemisphere; that it must be refined near the desert where it is mined; and that the refining process consists of two steps, first dissolving the nitrate in warm water, and then evaporating the water until the nitrate is precipitated from solution to the bottom of large tanks. For this step fuel and water are required, but both are lacking in the nitrate desert. The visible supply of nitrate is large enough, however, to justify the expense of laying pipe lines from the mountains, a hundred or more miles away. Coal is obtained from England or Australia, because the sparse population of the nitrate region has so few needs and wants that captains of vessels going to the nitrate ports would rather carry coal at a low rate than to go empty or in ballast. Coal is therefore cheap in the nitrate region, and the refining process is carried on in this most desolate of deserts. The demand for labor created by the localization of the nitrate industry here, has caused the growth of modern cities with populations as great as 50,000 people. Such a treatment of production processes is legitimate geography, because such processes are determined by geographic factors and conditions. The various steps in the assembling of an automobile or the making of boots and shoes have no place in geography, except to show that they must all take place near each other, and hence in one factory, which thus calls for concentrations of population, forming the manufacturing type of city.

At the risk of repeating some very elementary geography that is familiar to you all, let me now illustrate concretely and with the aid of these maps the sort of regional treatment that should precede the study of commodities or industries in a region such as Asia. (Philipps Relationship Maps of Asia were used. They may be obtained from Denoyer, Geppart & Co., Chicago.)

The first and most important fact in the geography of Asia is that it is a *large* continent, lying chiefly in the *north temperate zone*. As a result, in central Asia the sun in summer rises far to the north of east, culminates high above the southern horizon in the sky at noon, and sets after an apparent journey of fifteen or sixteen hours across the sky far to the north of west. As a result of the steeper rays, longer days and shorter nights, the temperatures of both land and sea begin to rise with the approach of summer. Since land heats more rapidly than water, central Asia becomes much warmer than the surrounding seas, especially those to the east and south. As a consequence, the air over Asia heats, expands upward, and flows out aloft from over the continental interior, producing low pressure over the land and high pressure over the sea, so that the winds of Asia in summer blow from sea to land and are known as the summer monsoons. In winter the winds are reversed, and blow from land to sea.

With such winds blowing over Asia, the next factor that must be introduced before the distribution of rainfall can be understood is surface.

Permit me to digress enough to say that another reason why I should

like to have commercial geography regional in character is the opportunity it offers high school students to use maps. By the use of maps I do not mean simply the finding and locating upon maps of the places which they run across in their text, but the actual reading of maps or the translation of map symbols into spoken or written thoughts, that shall express the great fundamental facts concerning the surface and drainage of a region and the distribution of its rainfall, vegetation and population. Such exercises in map reading have all the value that was formerly supposed to be attached to translation in the study of foreign or ancient languages. In addition they have the advantage of fixing in the mind the facts which they represent, for it is said we remember 10% of what we hear, 15% of what we read, and 20% of what we see. I have yet to find the high school student in my normal school classes that will not stand mute and dumb when asked to read the simplest facts from such maps as these.

From the maps representing surface winds and rainfall, it is easy to read and understand that the maximum rainfall of Asia comes during the summer half of the year, is heaviest around the borders, especially in the southeastern part, and is least—less than 10 inches—over much of the interior and the southwest.

Comparing rainfall and vegetation maps, it is evident that the amount and seasonal distribution of rainfall are the most important factors in determining the distribution of woodlands, grass lands, and deserts within the continent.

When mankind is created or migrates into such a continent as Asia, there will be a close correspondence between the density of its population and its food-producing capacity, as expressed by the map of its vegetation.

The type of life lived by Asiatic peoples is again determined by vegetation. The wandering, nomadic life, with all that that means in determining ideals, morals, industry, and trade, is forever predestined in the steppes and desert regions of the interior, except in those limited areas where irrigation is possible. The sedentary life will obtain in those regions whose greater food-producing capacity is reflected in their greater luxuriance of vegetation.

Mountains and desert barriers assert themselves by isolating certain peoples, causing the development of different races and national groups, as shown in part by the political map. Behind these physical barriers people not only develop racial and national peculiarities, but also specialize in their production and industries to such degree that commerce with other groups finally arises.

When such intercourse arises it often happens that race characteristics developed during the period of isolation are obstacles to migration into other regions. Thus the Chinese, under the stimulus of a rich soil, warm temperature, heavy summer rainfall, and a dense population, have developed virtues of endurance, industry and thrift which are as much of a barrier

to their admission to other lands as are their low standards of living. They therefore remain in China, with their population growing denser and denser, until cheap labor is their one great surplus, which they offer to the other regions in the form of silk and tea—two products which can be produced in other lands as well as in China, but which are there handicapped by the lack of an adequate supply of cheap labor. In such a setting, the detailed study of silk and tea and other commodities may then be taken up with the hope that the student already knows some of the determining factors which influence their production.

China is still, in spite of its many years of history, industrially young, and therefore an exporter of raw material and certain food products, and an importer of manufactured goods. It has within it, however, all the conditions, save one, for becoming very rapidly industrially old and an exporter of manufactured goods when the industrial revolution which took place in England a century ago shall have taken place there. With the largest untouched coal fields of the world, with abundance of iron ore, and a cotton producing area that rivals that of the United States, as well as other raw materials, and with an unlimited supply of wonderfully cheap and industrious labor, China lack only an efficient system of transportation to make it quickly into a manufacturing country. When that has been secured, and the awakening of China comes, there will arise such a crop of economic and political problems as will keep its own and the statesmen of other nations busy for many years to come.

It is because so many political and international questions and issues strike root into geographic conditions that the regional organization of commercial geography is to me superior to its organization around commodities. I cannot see how the latter organization can ever make clear to students, unless they be dragged in by the heels, the geographic factors that have operated to cause such a war as the present one. But when the countries at war are considered as regions, how inevitably do the influencing factors stand out. Germany came late into the family of nations—after the world had been partitioned among other nations. She therefore had no important colonies as sources of food supply and raw material, and yet she was rapidly becoming industrially old, so that she could no longer feed her rapidly growing city population with the products of her own fields, but was forced to import twenty-five per cent. of her food supply from abroad. To acquire and control the sources of her own food supply seemed to be the only guarantee of continued national existence, but the only way they could be acquired was to take them by force. To this end was shaped her philosophy that might makes right. To this end did she build her navy, train and equip her army and begin the war. To this end did she rush across defenseless Belgium, to seize the rest of France's coal and iron fields that were left after 1870, and to this end do her armies continue to advance into the heart of Russia, after the treaty of peace has been signed.

A recent letter from a little German girl to a Swiss girl, published in the Red Cross Magazine, represents the former as saying: "Some years ago my father said to us, 'Children, Germany is getting too small for us; we shall have to go to France again in order to find more room,' and she then adds, 'Is it our fault if France will not understand that more money and land are necessary to us?'" Surely it is not Germany's fault if France and Russia and England did not understand that Germany needed more room. But was it not the fault of French and Russian and English and American statesmen and schools that the people of these countries did not understand that Germany needed more room and was preparing to take it by force? I believe that geography can be so taught as to enable boys and girls to think along these lines in school, and thereby to deal more intelligently with them as the citizens of tomorrow. To me the regional organization of geography lends itself far more easily to such teaching than does the commodity organizations. Such teaching may not have bread and butter value, but it has a life and death value when nations grapple in such a struggle as the one in which we are engaged and the clear understanding of the issues involved becomes necessary.

EDUCATIONAL PSYCHOLOGY CONFERENCE

WHAT SUPERINTENDENTS AND OTHER SCHOOL ADMINISTRATORS OUGHT TO KNOW OF EDUCATIONAL MEASUREMENT

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I take it that in this day and especially with the members of this conference, educational measurement is not itself on trial. Rather, as Professor Judd pointed out in his address before the National Society for the Study of Education, at Atlantic City, educational measurement has passed the experimental stage and has already entered upon a stage of routine; it is accepted in any progressive school system as an obvious method of procedure, as an obvious part of the educational machinery of the system.

Nevertheless, I venture, in introducing my topic, to set forth what seem to me to be the underlying principles of the movement for educational measurement, because what I shall have to say about the preparation of superintendents and other school administrators for participation in this type of work implies the acceptance of these underlying principles.

Education is a formal and more or less systematic attempt to make certain changes in the behavior of human beings. The practical evidence that these changes have been effected appears in these human beings as a series of more or less well-defined outcomes, especially as items of information, skill, capacities, habits, mental attitudes, dispositions and traits. In principle all these changes are changes in amounts—more information, greater skill, reduced disposition to this, augmented tendency to that, etc.—and hence in principle are measurable.

The machinery that we set in operation in a school system to produce the hundreds of changes that we desire to produce is extraordinarily complex—in fact, a complete inventory of the educative agencies would really amount to a list of all the stimuli that assailed each pupil, hour by hour, minute by minute, from kindergarten to the day of graduation from the high school. Just as in any elaborately developed business or manufacturing enterprise there are some departments, some sections, some machines and some operatives that are consistent producers of profit, whereas other departments, sections, machines and operatives may be sources of loss, and just as these conditions often persist unsuspected, perhaps for years, until accurate cost accounting, scientific shop management and refined methods of employment are introduced; so in the elaborately developed enterprise of public school education there are some components in the system that are efficiently producing in the pupils the changes in behavior that are desired, while others are producing these changes inefficiently or perhaps not at all.

Which educational processes, which textbooks, which methods, which teachers, which courses of study, are the more effective, is a matter that in principle is to be determined by measurement of the results achieved and not by guess-work or arm-chair opinion.

Ten years ago we would have been obliged to rest content with that assertion. Now we can add that many of the changes produced in the behavior of pupils are not only measurable in principle, but are also being measured in practice. The objection that there remain certain outcomes of educational activity, like mental attitudes, ideals, prejudices and the like, that are not now measurable, even if true at the present, raises no objection to the measuring of other outcomes for which measuring rods have been supplied.

There are then, these principles that seem to be self-evident at the outset: (1) *that the changes produced by the educative process in pupils are in principle measurable changes*; (2) *that many of them are now measurable changes in practice*; (3) *that the various constituent parts of the machinery of school training undoubtedly are very unequal in their efficiency and that the use of measurement is necessary to locate and correct the sources of waste, the points where lost motion exists*.

There are certain other principles that I think would be accepted without argument. For instance, (4) *it is better to have the efficiency of a school system measured "from within"—by its own members, with perhaps a little expert assistance of an advisory or consultatory sort—than to have it measured from without, by strangers*. It is not necessary to remind my hearers that many of the surveys of city school systems, however meritorious they may have been, aroused antagonism within the system, were seized upon for political capital, and failed to bring about many of the changes that they revealed as desirable, so that it is hardly stretching the matter to say that many of these surveys were much more interesting and useful to other cities than to the ones in which they were made.

Another closely related principle is this: (5) *it is better to keep the measurement of school products continuously (or relatively continuously) in progress than to make sporadic or feverish attempts at it*.

Again, (6) *the final object of educational measurement is not the collection of data concerning existing conditions, but rather the utilization of these data to locate weak and strong points in the work of instruction, to suggest remedies for the weaknesses and to measure the efficiency of these remedies*. In the earlier days of measurement, the assembling of data was quite properly an object of immediate interest. No interpretations of conditions could be made without the computation of averages and variabilities, the plotting of distribution charts and the comparison of results obtained in different cities, in different grades, at different times in the school year, etc. Superintendents who use measurement methods in their schools must

be sure to carry their work to its logical completion; teachers are interested in the comparative results for different schools, different grades and different pupils, but beyond the stage of diagnosis of weaknesses lies the necessity of prescription, of the application of therapeutic agencies.

These bring us naturally to another principle: (7) *since the ultimate object of measurement is the improvement of classroom methods, since the measurement methods are applied upon pupils in the classroom, and since the results are bound in some degree to reflect the skill of the teachers, these teachers ought themselves to know something about the aim, the nature and the general theory under which the scales in use have been constructed, and, I think, also the chief principles underlying scientific measurement generally.* Also, they ought to participate personally in the application of the measurements and if possible in their tabulation.

An example of the way in which teachers may become interested in the use and in the interpretation of objective measurement methods is afforded in an article by Superintendent Bliss, of Montclair, N. J., on "School Measurements and School Administration,"* in which he says:

"Some of the principals became very much interested in the plan of measuring school progress, and began to apply the idea to their own buildings. One of them used it in the work in fundamental operations. His thought was that speed and accuracy in the four operations was of primary importance. . . . The class average, both in accuracy and in time taken for the work, was found at the beginning of the year, and the test was repeated monthly. It was kept as constant as possible by the simple transposition of digits. . . . Between the monthly tests teachers used careful drills to develop speed and accuracy. In one case a class made a deliberate attempt to raise its average ten points in a single month. In another, the teacher kept a careful record of the number of errors made by the class in each operation. The record was then used to determine which one of the four operations was productive of the greatest number of errors. This knowledge became the basis for drill to correct the faults. In mentioning these results, there is no idea of over-emphasizing the importance of arithmetic drill, but rather of making clear the fundamental proposition that exact and definite knowledge of class conditions on the part of the teacher is essential to economy of time in teaching. If this teacher had omitted such tests as we have described, she probably would have given each of the four operations the same degree of attention, while, as a matter of fact, one of these operations needed twice as much attention as another."

But this knowledge of the general principles underlying scientific measurement and of the aim, nature and theory of scale construction, in the present state of our normal school and training class organization, can probably not be given to every teacher in the elementary grades during her professional preparation. In fact, in the present state of instruction in col-

leges and universities, it probably cannot be given to every prospective high-school teacher. Thus, in the institution that I represent, the courses dealing with mental measurements, with scales and standards, with method in educational research, are elective courses, arranged primarily for graduates or advanced students and pursued mainly by those who are definitely preparing for administrative positions. On this account, (8) *if this information or any considerable portion of it that may be felt to be immediately desirable, is to be imparted to teachers in the public schools, it seems to me self-evident that it must be transmitted to them by their superintendents, or other supervisory or administrative officers to whom this aspect of the work has been assigned.*

Our argument now has led us to the thesis that in every school system there ought to be continuously employed standardized methods of educational measurement for the sake of increasing its efficiency; that the classroom teachers ought to take an active and intelligent interest in this work and that their zeal for, and their knowledge of measurement must be transmitted to them by some one "higher up." For the sake of simplicity let us assume that this "some one" is the superintendent of schools. Our inquiry then becomes, what must the superintendent know about measurement, in order to use it skillfully and successfully in his school system?

My first answer to his inquiry must be put negatively: (9) *the superintendent cannot be expected to be acquainted with all the scales now on the market for the measurement of educational products.* By "be acquainted with" I mean not only that he cannot be expected to keep in his mind the nature of each scale, who invented it, where it has been used, what results are to be expected; but I mean, also, that he cannot be expected even to have heard of dozens of these scales. In the recently issued *Seventeenth Yearbook of the National Society for the Study of Education, Part II.*, on "The Measurement of Educational Products," Mr. W. S. Monroe contributed a chapter on "Existing Tests and Standards," in which he enumerates and briefly describes 84 standardized tests for use in the elementary school and 25 standardized tests for use in the high school. In the former group there are 17 devoted to arithmetic, 17 to language, 13 to silent reading, 11 to spelling, 10 to handwriting, 6 to geography, 4 to oral reading, 4 to history, 1 to drawing and 1 to music. In the latter group there are 11 devoted to foreign languages, 7 to algebra, 3 to geometry and 1 each to drawing, history, physics, and physical training. I doubt if even Mr. Monroe himself would attempt to recall from memory half of the contents of his own chapter.

(10) *Again, and in a similar vein, the superintendent cannot be expected to be familiar with, or even to have read a tenth of the literature dealing with educational measurement.* In the *Yearbook* just mentioned there appears in the final chapter a "selected" bibliography and this selected bibliography contains just 606 articles. You will see that I would be giving

the busy superintendent a pretty stiff task if I should ask him to read one-tenth of the literature.

But while I would thus free the superintendent at the outset from the impossible task of knowing everything that has been done with educational measurement, I would in the same breath make what may seem to you an unwarranted extension of the field. (11) *In practice, educational measurement carries along with it, if it does not logically include, the measurement of the mental capacity of the pupils, and this type of measurement the superintendent should understand as well as he understands the measurement of speed of addition or quality of handwriting.* Just a few words to make out this case. The changes that the educative process proposes to make are, we have said, changes in the behavior of human beings. The processes of instruction are all conditioned in the last resort by the human material upon which they are directed. And as a matter of fact, if we could lay out in a row before us all the factors that co-operate to produce what we regard as a well-educated high-school graduate, we should find that the particular endowment of native ability given that individual graduate by inheritance at his birth was the one factor that outweighed everything else. I quote from an article by Mr. Courtis* a similar opinion, as follows:

"Rice, Stone, Cornman and many others have proved very conclusively that the factors of course of study, time devoted to arithmetic, textbook, ability of teaching, size of class, etc., which are ordinarily regarded of supreme importance, are *relatively* of minor importance. Each has its effect, it is true, but the *total combined effect* of all these factors is but one-half to one-tenth that of a single other factor—the individual differences in the native abilities of children. This is the *great determining factor* in school efficiency. And because it is equally ignored by school work everywhere, the results are everywhere equally inefficient—the existing differences from city to city being negligible in view of the very great differences which could easily be produced by attention to this one factor. . . . The efficiency of school work can most easily be increased not by increasing the opportunities provided, but by making for each *child* an individual adjustment of work based upon measured needs."

In view of this repeated demonstration that individual differences in endowment create most of the differences in the outcomes of school instruction, I myself do not see how the progressive school administrator can afford to be ignorant of the methods now available for measuring the mentality of pupils, nor how he can afford to take no cognizance of the methods of adjusting the work of the schools to these differences in mental power when once they have been determined. Just now this means, in some of our cities, the introduction of a number of ungraded classes, or special classes, for subnormal pupils. But this is only the simplest beginning of the task of grading and sectioning pupils in terms of their na-

*Educational Diagnosis. *Educ. Adm. and Superv.*, 1; Feb., 1915, 89-116.

tive ability. Just what we may hope to accomplish by attention to pupils of superior ability I shall try to set forth in the paper I read tomorrow morning.

Since the superintendent cannot possibly become expertly familiar with all the scales and all the mental tests that are being applied in school systems, he must concentrate on a few tests and he must make himself perfectly clear as to the fundamental principles that underlie all the others.

Take the first suggestion: (12) *I contend that any man preparing for a career as superintendent of schools ought to have had personal experience in the application, scoring and interpretation of results of at least one of the better known standardized tests in arithmetic, in reading, in spelling and in handwriting.* This experience ought to be extensive enough and intensive enough to render him thoroughly familiar with the tests he has used. As to what these tests should be, I do not feel competent to judge, but merely by way of illustration it might be suggested that in arithmetic the superintendent ought to have first-hand familiarity with either the Courtis Standard Tests, Series A or Series B, the Cleveland Tests, Monroe's Diagnostic Tests or the Woody Arithmetic Scales. In handwriting he ought to be familiar with either the Thorndike Scale or the Ayres Three-Slant Scale, or the Ayres Gettysburg Edition. In reading he ought to be familiar with either Brown's Silent Reading Test or the Thorndike Visual Vocabulary Scales, or Monroe's Standardized Tests in Silent Reading, or the Kansas Silent Reading Tests on which Monroe's are improvements. In spelling he ought to be familiar with either the Courtis Standard Research Tests, or Birmingham's Spelling Scale, or the Iowa Dictation Exercise and Spelling Tests. I am not saying that these I have named are the best tests; they are merely illustrative of well known ones, and my point is that the superintendent ought to be well enough acquainted with one, at least, in each subject that he could go before his teachers and give them a clear account of the method by which the test was constructed, what it is intended to do, how it should be administered in the classroom, how it should be scored, and what scores are to be expected of each grade in which it is tried.

(13) *In my judgment, even more important than this first-hand acquaintance with half a dozen typical tests, is a clear idea in the mind of the superintendent of the principles or methods that govern the entire field of measurement.* If he knows these general principles, he cannot go far wrong in his understanding of any proposed device for measuring the work of his system; if he does not know them, his application of any standardized test is reduced to the level of efficiency of an office clerk who does her best to follow directions without knowing why the directions are what they are.

I shall attempt to enumerate a number of these general principles of method in educational measurement, not in any exhaustive fashion, but merely mentioning at random those that occur to me as illustrative of what

the superintendent should have thoroughly instilled into his thinking on educational measurement.

(a) The general purpose of measurement is to describe quantitatively. In education the object is to replace what has been stated in words, crudely, by a more precise, quantitative statement.

(b) Although in the last resort, the changes that education makes in the educated individual are changes in his mental organization (or really in the organization of his central nervous system), our only way to measure these changes is by measuring their external products—words spoken or read, sums added, problems solved, lines drawn, music sung or played, directions followed. Even in the direct examination of mental ability itself, the same principle holds good; we infer the inner condition by inspection of the outer evidences, the objective products of that inner condition.

(c) These objective products are in themselves quite complex things and they usually depend not on one, but on many factors. Thus, for instance, the speed and accuracy with which a seventh-grade pupil solves ten problems in an examination in arithmetic, depends on his general intelligence, on his physical condition at the time, on the duration and quality of the instruction he has had in arithmetic all through the grade schools, on the recency of his instruction in the special kind of problem set before him, on the kind of work he has been doing just before the examination, on his attitude toward the test—whether anxious, eager or indifferent—on the way in which the problems happen to be stated, on the amount of light falling on his desk, on the temperature and humidity of the schoolroom air, etc.

(d) It follows that in order to measure any single one of these factors, we must know the value of the other factors, or else make a number of measurements in which one factor alone is varied while the others are kept constant.

(e) On account of the number and variety of the factors that condition any bit of activity on the part of a pupil, a single measure of that activity must possess a relatively high degree of unreliability. While a single good thermometer may measure the temperature of a liquid at the boiling point, a single list of ten words will not be a safe measure of the spelling ability of a fifth-grade girl. Two lists of twenty words would form a safer basis, while the average performance of 100 girls is far more reliable yet. Fortunately, statistical methods enable us to measure the amount of unreliability of our measurements. A superintendent needs to know to what extent measurements may be made more reliable by increasing their number, by repeating the measurement.

(f) Educational measurements often lack precision because the zero point of the scale is undefined or because the equivalence of the various units on the scale is not guaranteed. Understanding this will make the superin-

tendent more cautious in comparing results of different measurements, and especially guard him against introducing an appearance of quantitative precision into columns and arrays of figures that seem to be much more precise than they are.

(*g*) When tests and especially when methods of scoring tests are much simplified in order to make them readily intelligible and serviceable for the classroom teacher, this simplicity is often purchased at the expense of precision and scientific accuracy.

(*h*) No inference can be made from the results of any specific test to any general condition until the fact that the test in question is symptomatic, is diagnostic of that condition, has first been established by methods of statistical correlation. The most conspicuous fault of unskilled users of educational and mental tests is the neglect of this principle, with the consequence of hasty and unwarranted generalization. Thus, I once heard a superintendent caution his teachers to make special effort to improve the quality of work in all subjects, and to insist on less haste in arithmetic, in drawing, etc., just because the pupils of one grade in one school had averaged two points below the standard quality on the Thorndike handwriting scale. He explained to me that this had convinced him that the pupils were sacrificing quality for speed of work and the tendency must be checked. Just how the results of a single handwriting test could be generalized to cover a mental attitude toward work in arithmetic was not explained. The superintendent ought to be especially well trained in the interpretation of the results of tests, and especially well trained against reading into the results more than is warranted.

(*i*) To remove all possibility of misunderstanding instructions, which is one of the chief obstacles to success in the administration of tests with school children, it is usually wise to give the pupils preliminary acquaintance with the test by means of fore-exercise, with opportunity for questions from the pupils and for the correction of misunderstandings on the part of individual pupils. Long experience in applying mental tests to groups of college students has led me to believe that fore-exercise of this sort is necessary with even quite simple tests.

(*j*) If speed is to be one of the factors measured, tests undertaken with school children should be so arranged as to reduce to a minimum the amount of writing that is demanded.

(*k*) Tests that are too easy (so that a considerable number of pupils obtain a perfect score), or tests that are too hard (so that a considerable number of pupils obtain only a zero score), do not reveal the real distribution of ability within the group tested, and averages or other statistical constants figured from such measurements are apt to be misleading. The superintendent will see to it that tests appropriate to the grade under examination are used.

(1) With regard to mental testing, the superintendent needs at least to know the general principles that underlie the construction and application of the Binet-Simon tests—enough, let us say, to answer such questions as:

- (1) What is the general nature of the Binet tests?
- (2) What is meant by age-level?
- (3) What is meant by mental age?
- (4) How is the mental quotient computed?
- (5) What per cent of the school population has a mental quotient of 115 and over?
- (6) What is mental acceleration and retardation, and what percentage of children is usually found in these groups?
- (7) What amount of retardation constitutes feeble-mindedness?
- (8) How long does it take to give a Binet examination?
- (9) What sort of qualifications ought a Binet examiner to possess?
- (10) What arrangements of the Binet tests are in most common use in this country?

(11) How early in his school career could a pupil's mental age be determined and to what advantage from the administrator's point of view?

(12) Do the Binet tests give any assistance in vocational guidance?

(m) After tests are scored comes the need for statistical treatment of the obtained measures. It is not to be supposed that the superintendent would undertake to do all of this himself, but whether he delegates it or oversees it, he surely needs to know the more elementary methods of handling numerical data. Personally, I feel that this is a field in which the old proverb applies most truly that "a little knowledge is a dangerous thing." I had to read recently in an editorial capacity a report upon certain school conditions in which the raw results were tabulated and retabulated and sorted and classified for page after page; with the net outcome that the results of 90 per cent of the figuring told the reader nothing that he could conceivably want to know or need to know, while the one or two fundamentally significant computations that would have shown the degree of reliability to be attached to the whole undertaking were conspicuously absent. I sometimes believe that *camouflage* was first invented by a statistician. Let me list a few of the things that I think a superintendent ought to know about the handling of data:

(1) How to find an average, a median or a mode, and just what each of these three measures of central tendency is useful for.

(2) How to compute the usual measures of variability, like the mean variation, the standard deviation, the probable error, and the quartile deviation, and just why variability ought to be computed at all.

(3) What the difference is between using the units on a scale as mid-points and as lower limits.

(4) How to distribute measurements into a frequency table.

(5) How to translate a frequency table into graphic form, into a frequency surface.

(6) What is meant by the normal frequency curve and what its salient characteristics are.

(7) What a skewed distribution means.

(8) What a multimodal distribution means.

(9) How a comparison of averages of two sets of measurements undertaken to reveal differences is useless unless the reliability of this difference is also established.

(10) The meaning of correlation and ability to compute a correlation by the method of rank-comparison or the method of product-moments and to compute its reliability.

I realize, ladies and gentlemen, that in laying down what things I feel a superintendent ought to know that my tendency is to speak from the standpoint of the academic man. I have never had the fortune to be a school superintendent, and it may be that I misinterpret his duties and perhaps overestimate the amount of specific information he needs to have along the lines of educational measurement. On that account it is with considerable relief that I have read recently the opinions of Mr. Courtis, of Detroit, whose long experience in close contact with school teachers and school administrators engaged in measurement work certainly entitles him to speak with authority. Mr. Courtis, in an article entitled "Training courses in educational measurement" (*Seventeenth Yearbook of the National Society for the Study of Education, Part II*, pp. 133-138) is describing what he thinks ought to be the courses given in normal schools to train teachers to understand and to undertake educational measurements. I quote freely from Mr. Courtis:

"The primary aim of all courses for teachers must be to increase the teaching power of the students. But teachers are the stuff from which principals, supervisors and superintendents are made, so the training courses must be both broad enough, and wide and deep enough to give some knowledge of the administrative and supervisory uses of tests as well as of their instructional and diagnostic functions. . . . While the measurement work in a normal school should center around the direct application of measurement to the solution of problems of teaching, the broader aspects of the results secured must not be overlooked. . . .

"Of all the possible outcomes of training work in measurement, none is so important as the effect upon the student's point of view—upon his attitude, not only towards scientific experimentation in education, but also towards his educational experiences and life. . . . Therefore, it should be the supreme function of the measurement courses in normal training—as it has proved to be in the educational activities in the world outside the school—to give the student the scientific attitude of mind, the critical, im-

personal and inquiring point of view. They must teach him how knowledge arises and make him feel the cost in time and labor by which the present levels of civilization have been attained. They should so clearly reveal the part that measurements and scientific methods have played in every field of human activity that he will realize their importance in education and desire to make himself proficient in their use. They must give him bases of criticism and arouse in him such a passion for truth that all his life long he will constantly seek to test, open-mindedly, disinterestedly, impersonally, the validity of all conclusions.

"On the side of *knowledge* there is much to be learned. The student must acquire, by actual experience, knowledge of the different types of tests and the advantages and limitations of each. He must be familiar with the methods of test and scale construction and must have a first-hand experience in giving and scoring the more important of the available standard tests. He needs to know where to go for standards and for comparative data, and he should have made a careful, critical study of two or three typical survey reports. He must be given, also, some experience with the variations of performance caused by changes in conditions and must learn how these are to be controlled and interpreted. More than anything else, his practical work must serve to emphasize the differences in individual children and the need of adjustment of training to such differences.

"The successful course in educational measurement will have as one of its outcomes, the ability to pass certain standard tests in statistical methods; for instance, rate tests in making typical distributions, in finding averages and medians, in computing median and standard deviations, in calculating co-efficients of correlation, and in drawing graphs. Even more important than these are standard tests of ability to use educational scales in a consistent manner. There should be training on some of the standardized samples which have been published in writing and composition, until a set of 20 test samples can be marked without a variation of more than half a step of the scale. . . .

"Finally, the successful courses in measurement should result in *power* to use measurement in the solution of educational problems. That is, for full credit, the student should be able to pass successfully three types of power tests: (1) he should have planned, measured and compared the effects of his own and another's teaching of a specific instruction unit, like the teaching of a given 20 words in spelling, or a certain case in long division; (2) he should have devised, executed and interpreted a simple control experiment to settle some problem arising out of his practice teaching; (3) he should be able to diagnose by means of appropriate tests, and to prescribe the remedy for, the more common causes of failure in the fundamental subjects. No teacher who has had the practical experience with tests and testing that will enable him to meet these requirements will ever be willing to teach without the aid which standard tests afford."

Mr. Courtis concludes his article by suggesting how one might lay out a six semester course (four semesters in school and two in teaching under supervision) with training in educational measurement running through each semester. So far as I know, no normal school and no college gives at present anything like so comprehensive and carefully articulated a course in educational measurement as is there proposed, but I share Mr. Courtis' conviction when he prophesies that "in a very short time the work in measurement will be a major subject running through the entire period of training."

Certainly, when teachers armed with this sort of professional training begin to appear in our school systems, superintendents and other administrative officers will have to know many of the things I have outlined if for no other reason than to avoid being sized up by these teachers as "out of date" or "stupid."

SYNOPSIS OF BUSINESS MEETING

HELD IN UNIVERSITY HALL, MARCH 28, 29, 1918.

The meeting was called to order by President W. W. Warner.

The minutes of the last annual meeting were read by the Secretary, L. P. Jocelyn, and approved.

The reports of the Secretary-Treasurer and of the Auditing Committee were read and accepted.

The Nominating Committee made the following report: President, Superintendent E. O. Marsh, Jackson; vice-president, Miss Sadie M. Alley, Northwestern High School, Detroit; Secretary-Treasurer, L. P. Jocelyn, Ann Arbor.

The report of the committee was accepted and adopted and the officers declared elected.

The report of the Committee on Resolutions was made by Professor A. G. Hall, accepted and adopted.

At the request of W. W. Bishop, Librarian of the University, and others, it was moved and carried that a Library Conference of the club be formed.

It was moved by Professor C. O. Davis, and seconded by Professor A. S. Whitney, that there be appointed a committee consisting of the President and Secretary of the club and two other members to meet with a like committee of the State Teachers' Association to investigate the advisability of making the Michigan Schoolmasters' Club a section of the State Teachers' Association. The motion prevailed.

REPORT OF COMMITTEE ON RESOLUTIONS

We believe that the schools of our country should unceasingly strive to teach patriotism and loyalty to the ideals of democracy, humanity, and Christian civilization, as opposed to the forces of evil and reversion to savage barbarism. There can be no neutrality for teachers, who are charged with the gravest responsibility and influence in shaping public sentiment.

We, therefore, believe that it is incumbent upon Boards of Education to insist that all teachers shall be in full sympathy and enthusiastic accord with America's participation in the war. We recommend that Boards of Education require from every appointee, as a vital part of the contract, an unequivocal pledge of loyalty to the United States of America both in the present war and at all times.

In agreement with the opinions of President Wilson and of patriotic statesmen and administrators everywhere, we would emphasize the extreme importance of boys and girls continuing in school and college as long as

possible, so as to secure that broadly educated and highly trained body of citizens essential to the maintenance of free institutions.

In the present scarcity of teachers to fill the positions in our schools we would call for volunteers from college-trained men and women, and we would bring to the attention of Boards of Education this source of supply. It is the patriotic duty of teachers who are not called into military service to realize that there is no more loyal service than that of training the next generation of citizens.

Inasmuch as the rapid rise of the cost of living has virtually reduced one-half salaries measured by purchasing power, and in view of the prompt and generous participation of teachers in the Liberty Loans and the Red Cross, Y. M. C. A., and other war contributions, we deem it both just and necessary that teachers' salaries should be raised and adjusted to a fair living scale.

We again express our approval of measures for the establishment of universal military training.

In accordance with the demands for full effectiveness in administration and a more complete utilization of educational plants, we urge upon the schools of the state a careful investigation of the advantages of the four-quarter system over the present two-semester plan.

In view of the earnest, patriotic, and constructive character of the discussions, we feel that the holding of this meeting in war time is fully justified, and we recommend that the Club hold its meeting in 1919 as usual.

Respectfully submitted,

(Signed) ARTHUR G. HALL,
N. B. SLOAN,
E. E. GALLUP.

FINANCIAL REPORT OF THE SECRETARY-TREASURER, 1917-18

RECEIPTS

1917				
Balance as per last report, Commercial department.....			\$	118.98
Balance as per last report, Savings department.....				26.28
March 24.	Deposit	dues		106.10
" 24.	"	"		31.00
" 29.	"	"		345.00
" 30.	"	"		52.00
" 30.	"	"		349.00
" 31.	"	"		37.00
April 7.	"	"		5.00
June 5.	"	"		36.00
July 4.	"	"		4.00
Dec. 20.	"	advertisements		31.50
1918.				
Feb. 1	"	Sale of journals.....		70.00
Total receipts				\$1,211.86
Total disbursements				1,052.13
Total balance				\$ 159.73
Balance in Savings department.....				26.28
Balance in Commercial department.....				\$ 133.45

DISBURSEMENTS

1917.					
March	30	Check No. 399	F. C. Henderschott, address expense.....	\$	50.00
"	30	" " 400	F. W. Johnson, address expense.....		18.00
"	30	" " 401	Ella Schenck, clerk		2.30
"	31	" " 402	L. P. Jocelyn, salary Oct. 1—March 31.....		100.00
April	2	" " 403	F. S. Breed, supervised study committee.....		10.00
"	2	" " 404	F. S. Breed, postage for committee.....		7.91
"	2	" " 405	Earle Stephens, math. conference.....		1.50
"	4	" " 406	Archie Watt, door-keepers		22.20
"	6	" " 407	Nellis Breathwaite, clerk.....		4.00
"	6	" " 408	E. L. Jocelyn, clerk at annual meeting.....		5.25
"	7	" " 409	C. O. Davis, expense.....		3.50
May	5	" " 410	Ann Arbor Press, printing.....		122.00
"	5	" " 411	A. S. Whitney, shorthand institute.....		25.50
"	14	" " 412	H. J. Abbott, postage.....		2.00
"	18	" " 413	H. J. Abbott, postage.....		2.00
June	7	" " 414	S. W. Millard, badges, etc.....		24.75
"	18	" " 415	H. J. Abbott, 5c stamps.....		25.00
"	19	" " 416	American Express Co.		3.15
"	21	" " 417	Ann Arbor Press, printing.....		275.71
"	21	" " 418	Archie Watt, delivery		2.02
"	22	" " 419	F. S. Breed, supervised study.....		18.00
"	23	" " 420	Office expense for one year.....		91.10
July	25	" " 421	University of Michigan, janitors' service.....		2.82
Sept.	1	" " 422	F. S. Breed, supervised study.....		34.25
Oct.	1	" " 423	L. P. Jocelyn, 6 mo. salary.....		100.00
"	16	" " 424	H. J. Abbott, 2c stamps.....		2.00
Dec.	27	" " 425	H. J. Abbott, 3c stamps.....		3.00
1918					
Jan.	28	" " 426	H. J. Abbott, 1c stamps.....		5.00
March	7	" " 427	S. W. Millard, supervised study by Prof. Jackson		25.10
"	7	" " 428	G. L. Jackson, supervised study.....		25.73
"	9	" " 429	H. J. Abbott, postage		30.00
"	12	" " 430	Wells Fargo Express Co.....		3.31
"	16	" " 431	H. J. Abbott, postage		5.03
Total disbursements				\$	1,052.13

REPORT OF AUDITING COMMITTEE

We, the undersigned, as the Auditing Committee of the Schoolmasters' Club, certify that we have examined carefully the accounts and vouchers of the Treasurer, and find the same to be correct and accurate.

(Signed) WEBSTER H. PEARCE,
WM. F. HEAD,
ARTHUR G. HALL.

PROGRAM OF GENERAL SESSIONS

Thursday Morning, March 28

Joint Session of Schoolmasters' Club and Short Term Institute.

9:30 o'clock, Eastern Time
Hill Auditorium

President—Superintendent W. W. Warner, Saginaw.
Vice-President—Miss Anna S. Jones, Grand Rapids.
Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

1. Appointment of Committees.
2. 10:00 o'clock. Lecture: Recent Psychological Contributions to Education,
Professor John Dewey, Columbia University.
3. 11:00 o'clock. Lecture: The School and the Curriculum,
President Walter A. Jessup, University of Iowa.

Thursday Afternoon, March 28

4:00 o'clock, Eastern Time
Barbour Gymnasium

Gymnastic Drill by University Girls.

MICHIGAN STATE FEDERATION OF TEACHERS' CLUBS

4:15 o'clock, Eastern Time
Room B-2, High School

Chairman—Principal E. L. Miller, Detroit.
Secretary—Miss Lila E. Fyan, Detroit.

General Business of the Presidents of the different Clubs.

MICHIGAN INTERSCHOLASTIC ATHLETIC ASSOCIATION

4:30 o'clock, Eastern Time
Room B-8, High School

Chairman—Principal J. R. Bishop, Detroit Eastern.
Secretary—Mr. B. J. Rivett, Detroit Northwestern.

1. General Discussion of Interscholastic Athletics.
2. Business Meeting.

UNIVERSITY LECTURE

4:15 o'clock, Eastern Time

Upper Lecture Room, Alumni Memorial Hall

Illustrated Lecture on Recent Discoveries in Egypt illustrating Roman Domestic Life,

Professor C. T. Currelly, University of Toronto.

Thursday Evening, March 28

8:00 o'clock, Eastern Time

Hill Auditorium

Chairman—W. W. Warner, Saginaw.

Secretary—L. P. Jocelyn, Ann Arbor.

The Gary System, a full and complete description by means of moving pictures,

William Wirt, Superintendent of Schools, Gary, Indiana.

Wednesday Evening, March 27

High School Principals' Association

6:00 o'clock, Eastern Time

Michigan Union

Chairman—Principal N. B. Sloan, Bay City.

Secretary—

1. Dinner.*
2. Addresses.
3. Business Meeting.

Friday Morning, March 29

(Admission by badge)

9:00 o'clock, Eastern Time

University Hall

Business Meeting of General Session

President—W. W. Warner, Saginaw.

Vice-President—Anna S. Jones, Grand Rapids.

Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

- (a) Reports of Officers.
- (b) Reports of Committees.
- (c) General Business.

9:30 o'clock Eastern Time

Literary Program of General Session

1. An Experimental Investigation of Supervised Study in Michigan Schools,
Professor F. S. Breed, Department of Education, University of Chicago, and Chairman of the 1917 Committee.
2. Experiments with Public School Classes for Gifted Children,
Professor Guy Montrose Whipple, University of Illinois.
3. Our Second Line of Defense,
†Mr. William E. Hall, National Director of the Boys' Working Reserve, Washington, D. C.

* Make reservation by writing to Professor J. B. Edmonson, Ann Arbor.

† Mr. Hall requests a meeting of all county directors and enrolling officers immediately after the close of his address.

Friday Afternoon, March 29

4:15 o'clock, Eastern Time

High School Auditorium

A Summarization of All the Conference Meetings of the Club

Chairman—W. W. Warner, Saginaw.

Secretary—L. P. Jocelyn, Ann Arbor.

General Topic: Best Thoughts Brought Out at Each Conference,
 (Five-minute summaries to be given by the chairman or secretary of each Conference, or by a delegate appointed by the chairman.)

1. Classical Conference,
F. O. Bates, Chairman.
2. Modern Language Conference,
R. O. Hoffman, Chairman.
3. English Conference,
Emma G. Huneker, Chairman.
4. History Conference,
G. O. Leonard, Chairman.
5. Physics and Chemistry Conference,
W. H. Clark, Chairman.
6. Mathematics Conference,
W. H. Pearce, Chairman.
7. Biology Conference,
Ethel W. B. Chase, Chairman.
8. Commercial Conference,
L. M. Hazen, Chairman.
9. Physiography and Geography Conference,
R. D. Calkins, Chairman.
10. Art Conference,
Katherine G. Margah, Chairman.
11. Manual Training Conference,
A. E. Bowen, Chairman.
12. Educational Psychology Conference,
C. M. Elliott, Chairman.
13. Home Economics Conference,
Deda L. Emmons, Chairman.

UNIVERSITY LECTURE

8:00 o'clock, Eastern Time

Auditorium of New Science Building

Illustrated Lecture: Katmai and the Valley of Ten Thousand Smokes,
 Dr. Robert F. Griggs, Ohio State University.

Saturday Afternoon, March 30

12:00 o'clock

Barbour Gymnasium

1. Alumnae Luncheon.
 (Tickets at 75c should be secured by March 28.
 Apply to Dean of Women.)
2. Junior Girls' Play.
 (Tickets at the door, 35c)

PROGRAM OF CONFERENCES

Eastern Standard Time

CLASSICAL INSTITUTE-CONFERENCE

Tuesday Forenoon, March 26

Small Lecture Room, Alumni Memorial Hall

10:00 o'clock

1. Aegean Civilization before Homer: Crete,*
Professor John G. Winter, University of Michigan.

11:00 o'clock

UNIVERSITY LECTURE

2. Roman Religion from the Monuments: I. The Indigenous Gods of Rome and Italy,*
Professor Gordon J. Laing, University of Chicago.

Tuesday Afternoon, March 26

2:00 o'clock

Upper Lecture Room, Alumni Memorial Hall

Joint Session of the Classical and Modern Language Conferences

Presiding Officer—Professor A. G. Canfield, Chairman of the Modern Language Conference.

3. The Classics and the European Revolution of '48,
Professor W. W. Florer, University of Michigan.
4. Reminiscences of a Revolutionist of 1848,
Dr. Abraham Jacobi, New York.

Tuesday, March 26, is the Seventieth Anniversary of the passing of the Freiburg Resolutions, the first document officially demanding a Republican form of government for a united German State secured by a Constitution to be adopted by a German Parliament. Dr. Jacobi was a participant in the Revolution of '48, who took refuge in the United States and has remained consistent in his advocacy of Republican Principles.

4:15 o'clock

UNIVERSITY LECTURE

5. Roman Religion from the Monuments: II. The Graeco-Italian Divinities,*
Professor Gordon J. Laing, University of Chicago.

* Illustrated with the Stereopticon.

Wednesday Forenoon, March 27

Small Lecture Room, Alumni Memorial Hall

10:00 o'clock

6. Aegean Civilization before Homer: Troy, Tiryns, Mycenae,*
Professor John G. Winter, University of Michigan.

11:00 o'clock

UNIVERSITY LECTURE

7. Roman Religion from the Monuments: III. The Worship of the Emperors,*
Professor Gordon J. Laing, University of Chicago.

Wednesday Afternoon, March 27

Upper Lecture Room, Alumni Memorial Hall

4:00 o'clock

8. Explanation of an Exhibit illustrating the Value of the Study of Latin, prepared, on the lines of Miss Sabin's Manual, under the direction of Dr. Arthur P. McKinley, of the Lincoln High School, Portland, Oregon, and loaned to the University of Michigan for these meetings; mounted for inspection in the basement of Alumni Memorial Hall, March 26-30.

4:15 o'clock

UNIVERSITY LECTURE

9. Roman Religion from the Monuments: IV. The Oriental Cults,*
Professor Gordon J. Laing, University of Chicago.

Wednesday Evening, March 27

University Hall

8:00 o'clock

LATIN PLAY IN ENGLISH, PRESENTED BY THE CLASSICAL CLUB
OF THE UNIVERSITY OF MICHIGAN

10. The Phormio of Terence. English version by Professor J. Raleigh Nelson, University of Michigan, with adaptation to modern stage.

In order to meet the expenses of the play it is necessary to make a charge for admission. Reserved seats 50 cents, general admission 25 cents, war tax included. No libretto needed.

Seats may be reserved by addressing Dr. Orma F. Butler, Alumni Memorial Hall, Ann Arbor; tickets will be put in addressed envelopes and left at the Box Office, first floor of University Hall, where they may be called for March 26 and 27.

* Illustrated with the Stereopticon.

TWENTY-FOURTH CLASSICAL CONFERENCE

(Admission by badge)

Chairman—Mr. Frederick O. Bates, Detroit Central High School.
 Vice-Chairman—Miss Laura N. Wilson, Grand Rapids South High School.

Secretary—Miss Clara J. Allison, Michigan State Normal College.

Extension Committee—

Miss Clara J. Allison, Ypsilanti.
 †Miss Mary F. Camp, Detroit Central High School.
 Professor A. R. Crittenden, University of Michigan.
 All papers limited in length to 20 minutes.

Thursday Noon, March 28

Social Half-hour and Classical Luncheon.

11. Social Half-hour, parlors of Congregational Church, 12:00-12:30.
12. Classical Luncheon, Parlors of Congregational Church, 12:30.
 Brief addresses by President Thomas F. Kane, Olivet College,
 President-elect of the University of North Dakota;
 Professor Wallace N. Stearns, Fargo, North Dakota;
 Professor Arthur H. Harrop, Albion College;
 Professor Gordon J. Laing, University of Chicago;
 Professor C. T. Currelly, University of Toronto.

Tickets for the Luncheon, 65 cents.

All who desire to attend the Luncheon are requested to send their names to Professor A. R. Crittenden, Forest Avenue, Ann Arbor. In order to prevent waste it is absolutely necessary to know in advance how many will be present at the Luncheon. All friends of classical studies are invited.

Thursday Afternoon, March 28

Upper Lecture Room, Alumni Memorial Hall

2:00 o'clock

13. Plan and Construction of Roman Highways,*
 Miss Anne S. Thomas, Nordstrum High School, Detroit.
14. Socializing Latin,
 Miss Flora I. MacKenzie, Battle Creek High School.
15. Can Greek Come Back?
 Professor Wallace N. Stearns, University of North Dakota.
16. Discussion, led by Superintendent C. E. Chadsey, Detroit.
17. Business Meeting.

4:15 o'clock

UNIVERSITY LECTURE

18. Recent Discoveries in Egypt throwing Light upon Roman Domestic Life,*
 Professor C. T. Currelly, University of Toronto, Director of the Royal Ontario Museum of Archaeology.

† Miss Mary Frances Camp died August 25, 1917.

* Illustrated with the Stereopticon.

Friday Afternoon, March 29

Upper Lecture Room, Alumni Memorial Hall
1:30 o'clock, Eastern Time

19. The Western Front Yesterday and To-day,*
Miss Grace Grieve Millard, Detroit Central High School.
20. Aims and Problems of Junior High School Latin,
Discussion led by Professor B. L. D'Ooge, Michigan State
Normal College; Superintendent R. Hazelton, Marine City;
Miss Palmerlee, Detroit Southeastern High School; and
Miss Laura N. Wilson, Grand Rapids South High School.
21. Latin From the Viewpoint of the Inspector,
Professor J. B. Edmonson, University of Michigan.
22. Latin From the Viewpoint of the Superintendent,
Superintendent M. W. Longman, Owosso.
23. General Discussion of the Papers by Professor Edmonson and
Superintendent Longman.

3:45 o'clock

24. Ancient Illustrations of the Homeric Poems,*
Professor John G. Winter.

MODERN LANGUAGE TEACHERS' ASSOCIATION

President—Rodolphe O. Hoffman, Grand Rapids Junior College.
Secretary—A. G. Canfield, University of Michigan.

Thursday Afternoon, March 28

2:00 o'clock, Eastern Time
Room 203, University Hall

1. German in American Schools during and after the War,
Professor John W. Scholl, University of Michigan.
2. Outline of a Spanish Course for High Schools,
Professor C. P. Wagner, University of Michigan.
3. Symposium on Useful New Books for Modern Language Classes.
4. Report of the Committee on Aims of Modern Language Teaching.
5. Preliminary Report of the Committee on Foreign Language in the
Grades and Junior High School.

MODERN LANGUAGE CONFERENCE

(Admission by badge)

Friday Afternoon, March 29

1:30 o'clock, Eastern Time
Room 203, University Hall

1. The Language of the Poilu,
Mr. Albert F. Hurlburt, University of Michigan.
2. A French School Journal in War Time,
Miss Marie Cornwell, Grosse Pointe School.
3. Emile Verhaeren; son originalité,
Mr. Rodolphe O. Hoffman.

* Illustrated with the Stereopticon.

ENGLISH CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

2:00 o'clock, Eastern Time

High School Auditorium

Chairman—Miss Emma G. Huneker, Eastern High School, Bay City.

Secretary—Miss Helen L. Wood, High School, Fenton.

1. The Relation of the Library to English Work,
Mr. W. W. Bishop, Librarian of the University of Michigan.
2. Discussion,
Principal E. L. Miller, Northwestern High School, Detroit.
3. Round Table: Topic, Would a High School Play Exchange be
advantageous?
Conducted by Miss Lola Bishop, Western High School, Bay
City.

Friday Afternoon, March 29

1:30 o'clock, Eastern Time

High School Auditorium

4. Literature from the Business Man's Point of View,
Superintendent Frank A. Gause, Bay City.
5. Symposium: Topic, Some Things we are Actually Doing with our
English Classes,
Miss Gertrude Miller, Grand Haven.
Miss Elsa Dietrich, South Haven.
Mr. LeRoy Shepard, Hillsdale.
Miss Mary Derby, Lansing.
Miss Ida M. Schaible, Ann Arbor.

Note:—Teachers of English and History should visit the University Library
Extension Service, High School Corridor.

HISTORY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

1:30 o'clock, Eastern Time

Room C-3, High School

Chairman—Geo. O. Leonard, High School, Highland Park.

Secretary—Miss Mary Harden, South High School, Grand Rapids.

1. The Dangers in Community Civics,
Professor Carl E. Pray, Michigan State Normal College.
Discussion—
1. Mr. O. G. Frederick, Ass't Supt. of Schools, Detroit.
2. Mr. E. W. McFarland, Ass't Prin. Northern High School,
Detroit.
2. Making the Past Real in History,
Mr. J. T. Caswell, High School, Highland Park.
Discussion—
1. Miss Ora B. Peake, Bay City.
3. The Need of Specially Trained Teachers in History,
Paul C. Stetson, Prin. of South High School, Grand Rapids.
Discussion—
1. Arthur Dondineau, Supt. of Schools, Grand Haven.
4. The Supervised History Recitation,
Miss May Green, High School, Adrian.
Discussion—
1. Miss Ella M. Campbell, High School, Traverse City.
5. Report of the American Historical Association.
6. Business Meeting.

Friday Afternoon, March 29

1:30 o'clock, Eastern Time

7. Relation of the War to the History Course and History Requirements,
Earl G. Fuller, Hackley High School, Muskegon.
Discussion—
1. Miss Sarah O'Brien, High School, Ann Arbor.
8. The War and What It Means to Us,
Professor J. R. Turner, University of Michigan.
9. The Need of Greater Emphasis in the Instruction of Citizenship
as Revealed by the World War,
Charles E. Chadsey, Supt. of Schools, Detroit.
Discussion—
1. Mr. O. S. Trumble, High School, Jackson.
10. The Study of Contemporary History,
Bessie L. Priddy, Michigan State Normal College.
Discussion—
1. Mr. H. L. Simpson, Northern High, Detroit.
11. Resolutions.
12. General Discussion.

PHYSICS AND CHEMISTRY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

1:30 o'clock, Eastern Time*

Physical Laboratory, West Lecture Room

Chairman—Mr. W. H. Clark, The Dow Chemical Company.

Vice-Chairman—Professor C. W. Greene, Albion College.

Secretary—Mr. C. I. Altenburg, Highland Park.

1. A Demonstration Inclined Plane,
Superintendent S. C. Mitchell, Lowell.
2. The Demands of the Public upon the Chemistry Teacher,
Principal H. S. Doolittle, Saginaw.
3. Some Apparatus Possibilities,
Professor F. R. Gorton, State Normal College.
4. The Elementary Chemistry Teacher and the War,
Mr. Frank B. Wade, Shortridge High School, Indianapolis, Ind.
5. A Lamp Box for Use with the Optical Bench,
Mr. H. E. Hammond, Kalamazoo.
6. The Oddities of Chemistry, as she is Taught,
Professor Alexander Smith, Columbia University.
7. Business Meeting.

Friday Afternoon, March 29

1:30 o'clock, Eastern Time

Physical Laboratory, West Lecture Room

8. A few Local Experiments in Electrolysis,
Superintendent J. B. Mott, Midland.
9. Applications of Photosynthesis in High School Chemistry,
Mr. John L. Dahl, Highland Park.
10. Magnetism and the Electron Theory,*
Mr. Walfred Benson, Battle Creek.
11. Perrin's Work on the Determination of Avogadro's Number,
Miss Katheryn Chamberlain, Detroit Northwestern.
12. Audions, Pilotrons and Kenotrons, with experimental illustrations,
Dr. W. F. Colby, University of Michigan.
13. The First Semester's Chemistry from the Standpoint of the
Student,
Mr. E. C. Porter, Detroit Western.
14. Aeronautics in the War,
F. W. Palowski, University.

* Physics-Mathematical Conference Luncheon, Cong. Church, 12:30 P. M., 65c.

* Illustrated with the Stereopticon.

MATHEMATICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

12:30 o'clock

Mathematical-Physics Luncheon in Cong. Church, 65c

2:00 o'clock, Eastern Time

Lecture Room, Tappan Hall

Chairman—Professor W. H. Pearce, Central Normal School.

Secretary—Mr. J. B. Porter, Northwestern High School, Detroit.

1. Making Algebra Practical,
Principal O. H. Voelker, Owosso.
2. Geometry: Its Place and Function in the High School,
Mr. E. J. Shassberger, Lansing.
3. Some Observations,
Professor J. B. Edmonson, University.
4. Group Recitations in Mathematics,
Mr. L. D. Wines, Ann Arbor.
5. What Should be Emphasized in the Teaching of Mathematics to
Best Help the Teaching of Physics?
Mr. H. N. Chute, Ann Arbor.
6. High School Mathematics from the Parents Viewpoint,
Principal John F. Thomas, Martindale Normal Training School,
Detroit.

Friday Afternoon, March 29

1:30 o'clock, Eastern Time

Lecture Room, Tappan Hall

7. Some Simple Devices and Aids in Teaching Mathematics,
Mr. J. E. Wellwood, Flint.
8. Mathematics in the Grades,
Professor L. C. Karpinski, University of Michigan.
9. ————
Professor Harold Blair, Western Normal School.
10. The Functions of Standard Tests in Mathematical Teaching,
Mr. S. O. Courtis, Director of Research Work, Detroit.

BIOLOGICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

2:00 o'clock, Eastern Time

Room 207, New Science Building

Chairman—Miss Ethel W. B. Chase, Detroit Central High.

Secretary—Miss Helen B. King, Saginaw.

1. Results Obtained at the Highland Park School Farm, 1917,
Mr. J. R. Locke, Highland Park.
2. Report on the Conservation Work in the State, Season 1917,
Miss May Person, Michigan Agricultural College.
3. Relation of the Teaching of Physiology in Secondary Schools to
the War Emergency,
Miss Grace Ellis, Grand Rapids Central.

4. Open Forum—Suggested for Discussion,
 - (a) What can be done to direct students dropping German, into Biology?
 - (b) Does the double laboratory period cause discrimination against Biology?
 - 1 On the part of the student? 2 On the part of administration, because it increases the number of conflicts?
 - (c) Should some effort be made, by teachers of Biology, to advertise the subject?

Friday Afternoon, March 29

12:00 o'clock, Eastern Time

New Science Building, Room 100

Luncheon for Biologists, 50c per plate

1:30 o'clock, Eastern Time

Room 207, New Science Building

5. Symposium on Nutrition,
 - (a) Vitamins or Food Accessories, their Necessity and Distribution in Foods,
Professor J. B. Pollock, University of Michigan.
 - (b) Salt Equilibrium in Maintenance and Nutrition,
Professor O. C. Glaser, University of Michigan.
 - (c) New Things in Protein Nutrition,
Dr. Herbert W. Emerson, University of Michigan.
6. General Discussion.

At 8:00 P. M. in the Auditorium of the New Science Building, Dr. Robert F. Griggs, of the Botanical Staff, of Ohio State University and Director of the Katmai Expedition, will give an illustrated lecture on Katmai and the Valley of Ten Thousand Smokes. As a regular University lecture, this will be open to the public but will be of exceptional interest to biologists.

ART CONFERENCE

(Admission by badge)

Friday Afternoon, March 29

1:30 o'clock, Eastern Time

Room A, Alumni Building

Chairman—Mrs. Katherine C. Margah, Highland Park.

Secretary—Miss Agnes Van Buren, Grand Rapids.

1. Modern Stage Decoration in the Art Theater,*
Mr. Sam. Hume, Arts and Crafts Theater, Detroit.
2. What Art in the School is doing for the War,*
Miss Theresa Shier, Library Publicity Director, Lansing.
3. Discussion,
More Art Requirements for University Entrance to the Architectural Instruction in the High School,
Professor Emel Lorch, University of Michigan.
4. Business Meeting.

* Illustrated with the Stereopticon.

COMMERCIAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

2:00 o'clock, Eastern Time

Room B-8, High School

Chairman Mr. L. M. Hazen, Southeastern High School, Detroit.

Secretary—Mr. O. V. Adams, Ann Arbor.

1. Teaching Business Correspondence,
Professor E. H. Gardner, University of Wisconsin.
2. The Duty of the High School to the Commercial Student Who
Cannot Graduate,
Superintendent L. J. Knapp, Highland Park.
3. Standardization,
Mr. O. V. Adams, Ann Arbor.

Note:—Provided a sufficient number of reservations are made by March 26, a luncheon at 75c a plate will be served Thursday noon, eastern time, at the M. E. Church. Make reservations with Mr. O. V. Adams, Secretary.

GEOGRAPHY AND PHYSIOGRAPHY CONFERENCE

(Admission by badge)

Joint meeting with the Michigan Council of Geography Teachers

Thursday Afternoon, March 28

2:00 o'clock

Room 217-G New Science Building

Chairman—Prof. R. D. Calkins, Mt. Pleasant.

Secretary—F. W. Frostic, Ann Arbor.

1. Regional Method of Teaching Commercial Geography,
Prof. R. D. Calkins, Central State Normal School.
2. Commodity Method of Teaching Commercial Geography,
Dr. C. O. Sauer, University of Michigan.
3. Sources of Current Information in Commercial Geography,
Mr. George Jones, Cass Technical High School, Detroit.
4. Use of Maps and Graphs in Commercial Geography,
Miss Genevieve M. Clark, Michigan State Normal College.
5. Geographical Excursions to Industrial Plants,
Mr. Chas. A. Daley, Cass Technical High School, Detroit.
6. Trade Routes and Commercial Trade Centers,
Mr. F. W. Frostic, University of Michigan.
7. Dinner Meeting—6 o'clock, Michigan Union. Executive Committee
Michigan Council of Geography Teachers.

Friday Afternoon, March 29

1:30 o'clock

Room 217-G New Science Building

8. Report of the Committee to investigate the Status of Earth Science
in the Accredited High Schools of Michigan,
Mr. F. W. Frostic, Chairman.
9. Discussion, The Place of Commercial Geography in the High
School,
Lead by Prof. L. H. Wood, Western State Normal School.
10. Report on the proposed set of outline maps for Michigan Schools,
Dr. C. O. Sauer, University of Michigan.

MANUAL TRAINING CONFERENCE

(Admission by badge)

Friday Afternoon, March 29

1:30 o'clock, Eastern Time

Room C-1, High School

Chairman—Professor A. E. Bowen, Western State Normal School.

Secretary—Mr. Carl L. Dorsey, Highland Park.

1. Relations of Manual and Industrial Arts Directors and Teachers to the Problem of Vocational Education in Michigan,
Professor George E. Myers, University of Michigan.
2. Discussion,
Mr. E. G. Allen, Cass Technical, Detroit.
Superintendent W. A. Greeson, Grand Rapids.
3. The Vocational Curriculum to Meet the Demands of the Smith Hughes Bill,
Mr. C. G. Price, Director Vocational Education, Battle Creek.
4. Discussion,
Mr. Chas. C. Wenzel, Director of Manual and Vocational Training, Kalamazoo.
5. Dictated but not Read,
Mr. Glenn Mayer, Western Normal School.
6. Discussion,
Mr. Hollenbeck, Saginaw.
7. Round Table and Business Meeting.

EDUCATIONAL PSYCHOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

2:00 o'clock, Eastern Time

Physics Lecture Room, High School

Chairman—Professor Charles M. Elliott, State Normal College.

Secretary—Principal John F. Thomas, Detroit Normal.

1. What Superintendents and other School Administrators ought to know of Educational Measurement,
Professor Guy Montrose Whipple, Univesrity of Illinois.
2. General discussion, led by
Dr. N. A. Harvey, State Normal College.
Supt. J. T. Knapp, Highland Park.
3. Business Meeting.

HOME ECONOMICS CONFERENCE

(Admission by badge)

Thursday Afternoon, March 28

2:00 o'clock, Eastern Time

Room B-1, High School

Chairman—Miss Deda L. Emmons, Northwestern High School, Detroit.
Secretary—Miss Mary Faulkner, Highland Park.

What we have done, are doing, and expect to do, to meet the World's
Crisis in our work at the present:

1. At Michigan Agricultural College,
Dean Georgia L. White.
Miss Mary Edmonds.
2. At Michigan State Normal College,
Miss Martha French.
Miss Edith Blackman.
3. In Detroit,
Miss Grace P. McAdam.
Miss Julia P. Grant.
4. In Battle Creek,
Miss Alice M. Cimmer.
5. Glimpses from the State,
Mr. Chas. A. Parcels, Detroit.
6. Report of the Meeting of National Home Economics Association
held at Atlantic City,
Mrs. Martha French, Normal College.
7. Report of the Committee on the Standard Course of Study,
Miss Parker, Grand Rapids.

Members of the Schoolmasters' Club

Life Members

Kelsey, F. W.
Univ. of Michigan

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Highley, A. M.
Jocelyn, L. P.
O'Brien, Sarah
Porter, Alice
Schaible, Ida M.
Slauson, H. M.
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Wines, L. D.

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Courtis, S. A.
Merrill, John

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Cooke, C. S.

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Darnell, Albertus
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Irwin, F. C.
Mackenzie, David
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Liggett, Jeannette M.

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McMillan, D. W.

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Hempsted, Joanna K.
Matthews, J. W.
Meiser, Augusta B.
Morse, Wm. A.
Roper, Gertrude L.
Waples, Marcia
Weir, W. W.

FERRIS INSTITUTE

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Nutt, H. D.

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Winkler, Max
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Mutschel, Matilda

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Norris, O. O.

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Pray, Carl E.

Priddy, Bessie L.

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Strong, E. A.

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Hall, A. G.

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Karpinski, L. C.

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Kraus, E. H.

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Rich, D. L.

Running, T. R.

Scott, F. N.

Scott, I. D.

Swain, Geo. R.

Wenley, R. M.

Whitney, A. S.

Williams, N. H.

Winkler, Max

Ziwet, Alexander

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Hickey, T. P.

Waldo, D. B.

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Wells, Eunice

YPSILANTI

Arbaugh, W. B.

Hardy, Carrie A.

Ross, De Forrest

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McNeil, E. W.

Reed, E. J.

ALBION

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Head, W. F.

Johns, Margaret

Sedam, Coral E.

Shea, Ruth

Ten Eyck, Oana

Young, Clara E.

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Evans, O. F.

Harrop, A. H.

Fall, Delos

Goodrich, F. S.

Greene, C. W.

Lutz, F.

Sleight, E. R.

ALGONAC

Butler, Nita L.

ALMA

Bittner, Eleanor

ANN ARBOR

Adams, O. V.

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 Bennett, Ella M.
 Breed, Gertrude T.
 Brown, Ruth
 Chute, H. N.
 Dicken, Carrie L.
 Donahue, E. M.
 Downs, Mrs. Lulu
 Duff, Lela
 Ehle, C. E.
 Essery, E. E.
 Forsythe, L. L.
 George, Louise
 Glasier, Lucy
 *Goodell, F. Maude
 Hamilton, F. G.
 High, J. B.
 Highley, A. M.
 Hodson, Catherine E.
 Jocelyn, L. P.
 Miller, Jean
 O'Brien, Sarah
 Osborn, Lurene
 Palmer, Mrs. J. V.
 Parry, Edna
 Plympton, Mrs. C. G.
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 Purtell, Catherine
 Rennie, Florence M.
 Robertson, Florence E.
 Robison, Cora
 Rolfe, E. C.
 Rothman, Alice
 Samuelson, A.
 Schaible, Ida M.
 Sink, Mrs. Maud F.
 Slauson, H. M.
 Springer, D. W.
 Steele, Anna
 Sturgis, Christine
 Sturgis, Marchie
 Terrell, Alice
 Ticknor, Frances
 Tinkham, Lona C.
 Weinmann, Louise
 Welton, Mary Louise
 Wines, L. D.
 Woessner, Anna L.
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- BANGOR**
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 Beese, Julia H.
 Bishop, Lola L.
 Butterfield, G. E.
 Campbell, Florence
 Carlton, Ruby
 Carroll, Florence
 Day, Agnes A.
 Demmer, J. E.
 German, W. L.
 Gilbert, Maude E.
 Hunecker, Emma G.
 Liskow, Julia
 Logan, Jennie B.
 MacGregor, Helen
 MacGregor, Mary
 McIlhenny, Mary E.
 Monahan, Mary
 Peake, Ora B.
 Perkins, W. L.
 Rich, L. H.
 Sharp, E. M.
 Skinner, G. H.
 Sloan, N. B.
 Sutton, T. C.
 Ten Eyck, H. E.
 Touse, Chas.
 Wells, Berta A.
- BIRMINGHAM**
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- Vliet, Clarence
BLOOMINGDALE
 Mayer, R. W.
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 Wigent, W. D.
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 Oberlin, Esther
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 Long, Mabel
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 Beverley, Clara
 Boyer, C. J.
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 Cody, Frank
 Cole, Consello
 Conover, Grace
 Conover, Mary
 Courtis, S. A.
 Dixon, W. E.
 Engel, Anna
 Engel, Erma
 Frederick, O. G.
 Gerls, Marian S.
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 Graham, Gladys
 Grant, Julia
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 Guysi, Jeannette
 Hall, H. P.
 Harris, Mrs. Sarah G.
 Kepler, F. R.
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 McAdams, Grace P.
 McBee, A. L.
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 Mackenzie, Janet
 Mans, Louise
 Merrill, John
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 Morse, J. A.
 Murray, Lota M.
 Shaw, E. R.
 Stevens, R. W.
 Trybon, J. H.
 Van Adestine, Gertrude
 Yendall, Edith
- DETROIT CASS TEC.**
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 Byrn, M. L.
 Chaney, O. L.
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 Comfort, B. F.

Cooke, C. S.
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 Emig, R. E.
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 Hinds, A. M.
 Holland, Cora E.
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 Jenney, H. R.
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 Keal, H. M.
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 Reynolds, Emma H.
 Schell, H. G.
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 Smith, Edna
 Stowell, B. D.
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 Anderson, Mary
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 Bishop, Helen L.
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 Brigham, A. L.
 Bromley, Lillian M.
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 Chapman, H. H.
 Chase, Ethel W. B.
 Collins, John A.
 Conover, Kate B.
 Copeland, Cornelia A.
 Darnell, Albertus
 de Gomar, Juan A.
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 Gates, E. R.
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 Hadley, May
 Hanke, F. E.
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 Harrah, Grace E.
 Hawley, Elizabeth W.
 Hill, Grace A.

Hill, Laudrey
 Hine, Katharine G.
 Holmes, D. L.
 Hull, Isabella H.
 Irland, Helen
 Irwin, F. C.
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 Jones, Grace E.
 Kanouse, Marion
 Lennon, Mary E.
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 Mackenzie, Agnes H.
 Mackenzie, David
 Malcomson, Rachel A.
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 Millard, Grace G.
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 Mutschel, Matilda
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 Thompson Margaret E.
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 Lenzner, Ruth
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 Cooper, L. G.
 Cox, W. H.

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 Elliott, Grace
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 Foster, Frances A.
 Fyan, Lila
 Gardner, L. B.
 Gorton, Florence
 Green, Grace
 Hickie, Beatrice
 Hudson, Maude E.
 Hutchins, Kate M.
 Jackson, Virginia M.
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 Kimball, Edith M.
 Kolb, Marguerite
 Lane, H. A.
 Leck, Bertha
 Lussky, Alma
 Minnard, Ethel
 Mullen, Mrs. Selah W.
 Novak, Chas. M.
 Plee, N. Octavia
 Porter, H. C.
 Quick, Gulla
 Raycraft, R. E.
 Remington, R. E.
 Sheehan, Genevieve M.
 Wilson, Mrs. Lenore
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 De Greene, A. L.
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 Fields, Teresa M.
 Fleming, Nina
 Fox, Ethyl
 Haberstiche, Felecie L.
 Jillson, G. F.
 King, Blanche L.
 King, Ruth
 Knapp, Isabel
 Lienau, O. P.
 Longworth, Mary A.
 Lutz, Gretchen
 Malone, Bertha
 Miner, M. Lovicy
 Powels, J. J.
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 Schmidt, M. E.
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 Cooper, Elsie E.
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 Doyle, Gertrude M.
 Duffy, Genevieve K.
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 Emmons, Deda L.
 Fraser, H. F.
 Gilpin, A. R.
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 Hill, Florence J.
 Jaehnig, May S.
 Jerome, M. D.
 Jones, A. F.
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 Lindquist, Lily
 McKeown, Marjory
 Maichele, Grace
 Maris, B. G.
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 Miller, Wilhelm
 Nicolson, Marjorie
 Parsons, Inez
 Peterson, Eleanor
 Porter, I. E.
 Rivett, B. J.
 Roehm, Dorothy
 Rowe, Winifred
 Schaible, Clara
 Simpson, Shirley
 Spence, Chas.
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 Tormey, Ella F.
 Wentworth, Wm. H.
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 Whitney, Edward
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 Worden, Orpha E.

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Mason, Elizabeth
 Palmerlee, E. Grace
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Fletcher, D. H.

Fries, N. H.

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 Barney, Blanche K.
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 Brown, Margaret C.
 Coughlan, Nina
 Drake, Lucy E.
 Edmonds, Geo. P.
 Frutig, Marie L.
 Hawn, Effie
 Hempsted, Johanna K.
 Hendershott, Pearl
 Hickok, D. W.
 Holmes, E. L.
 Holmes, F. H.
 Hulbert, W. O.
 Ludke, C. W.
 Matthews, J. W.
 Meiser, Augusta B.
 Moen, Sarah
 Morse, W. A.
 Nelson, Leila S.
 Parke, Elizabeth
 Parker, Flora E.
 Pitts, Dora
 Porter, E. H.
 Prange, Ellen M.
 Roper, Gertrude
 Scott, Margaret E.
 Seiffert, Berthold
 Smalley, Harriet M.
 Smith, Grace
 Sturm, Alcie K.
 Sundstrum, Elizabeth
 Thomas, G. C.
 Turney, Mary E.
 Waples, Marcia
 Warner, W. E.
 Weir, W. W.
 Wilkinson, A. O.
 Willoughby, Ruth A.
 Wiltsie, Katherine D.
 Woodward, Mabel C.
 DEXTER
 Bowen, D. C.
 DOWAGIAC
 Eaton, C. D.
 DURAND
 Eddy, Anne

Goudy, W. S.
 Mellencamp, Esther
 EAST LANSING
 Lewis, H. P.
 ECORSE
 Miller, C. J.
 ELBERTA
 Gould, W. E.
 EWEN
 Cheney, R. E.
 FENTON
 Brown, Opal
 Bryce, Isabelle
 Lyons, D. F.
 Normington, Olive
 Thompson, Holland
 Wood, Helen L.
 FERRIS INSTITUTE
 Ferris, W. N.
 FLINT
 Armstrong, Louise
 Ballard, Edna
 Bidwell, Susan
 Burns, J. W.
 Cody, A. N.
 Des Jardins, Helen
 Fuller, Florence
 Gold, Lillian
 Gold, Mary E. S.
 Halsted, Bessie
 Inglis, Scarth
 Mudge, Harriet
 Nutt, H. D.
 Owen, Edith
 Parmelee, L. S.
 Pratt, L. A.
 Puffer, W. J.
 Russell, W. J.
 Sdunek, Ottelia
 Seymour, Mary S.
 Straughn, Virginia
 Thompson, Helen
 Wellwood, J. E.
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 Dondineau, Arthur
 Isherwood, Maude A.
 Miller, Gertrude A.
 Pierson, W. A.
 GRAND LEDGE
 Johnson, Alice M.
 GRAND RAPIDS
 Calkins, Charlotte W.
 Carpenter, C. M.
 Davis, Jesse B.
 Ellis, Grace F.
 Fink, Jessie M.
 Greeson, W. A.
 Hanna, R. A.
 Harden, Mary
 Hinsdale, Mary L.

Hughes, Charlotte C.
 Hulst, Cornelia S.
 Inglis, Lois Ruth
 Jones, Anna S.
 Kennedy, Keith
 Lindberg, Anna E.
 Morrisey, Lauretta I.
 Palmer, R. A.
 Rinck, Wm.
 Rowson, Laura L.
 Schweitzer, Louise
 Stearns, Frances L.
 Stetson, P. C.
 Switzer, C. F.
 Van Buren, Agnes
 Wilson, Laura N.
 GROSSE POINTE
 SCHOOL
 Beardsley, May
 Cornwell, A. Marie
 Gibson, Grace
 Gies, Harriet F.
 Howe, Leone
 Hunter, R. C.
 Osterhout, Rose
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 Dorsey, C. L.
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 Knapp, T. J.
 Leonard, G. O.
 Locke, Anna
 Locke, Frances
 Locke, J. R.
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 Mickens, C. W.
 Palmer, Sadie J.
 Prakken, Wm.
 Sherzer, Josephine
 Smith, P. H.
 Thomson, Evelyn E.
 Van Loon, G. E.
 Waite, R. E.
 Wines, Emma
 HILLSDALE COL.
 Larrabee, H. B.
 Mauck, J. W.
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 De Barr, Metta
 Ward, Ruth

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 Lowrey, H. H.
 ITHACA
 Wooley, Margaret
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 Baird, Mrs. E. G.
 Barsdale, Ethel
 Bartoo, G. C.
 Beck, Frances M.
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 Bolster, Edith G.
 Bosier, M. L.
 Burt, Ida M.
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 Farrand, Helen
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 Hollon, Louise M.
 Kempf, Flora
 MacArthur, Nancy
 McClue, Hester L.
 McCulloch, G. L.
 Marsh, E. O.
 Mason, A. R.
 Messenger, Fern
 Molley, Myrnie
 Moore, Hattie Mae
 O'Dwyer, Elizabeth
 Parker, P. F.
 Paschke, L. A.
 Pearce, F. W.
 Richards, Delia
 Schiller, G. B.
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 Shepard, C. W.
 Shepard, Winifred
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 Smith, Syra
 Swarthout, Alice M.
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 Shaw, Zoe C.
 Walton, Jessie S.

- Wilcox, C. C.
 Worth, E. N.
KALAMAZOO COL.
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 Allen, Lita M.
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 Crilly, Etta
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 Fox, Karolena M.
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 Hall, Marion E.
 Hartman, Margaret
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 Jensen, J. H.
 Julien, Laura
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 McKale, H. B.
 Morrison, Belle
 Munson, J. M.
 Nivison, Winifred
 Palmer, Pearl
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 Porter, Doris
 Pratt, Margaret
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 Shassberger, E. J.
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 Trachsel, W. J.
 Tunison, Mary
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 Wilbur, Etta R.
 Wykoff, Veda
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 Plant, L. C.
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 Leiter, Ruth
 Paula, Sister M.
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 Spencer, D. S.
 Theodosia, Sister M.
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MT. PLEASANT
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NILES
 Allen, Hilah L.
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 Barbour, F. A.
 Beal, Vinora
 Blackman, Edith
 Buell, Bertha G.
 Clark, Genevieve
 D'Ooge, B. L.
 Elliott, C. M.
 Ford, R. C.
 French, Martha H.
 Goddard, Mary A.
 Gorton, F. R.
 Greenstreet, F. M.
 Harvey, N. A.
 Hatton, Mary E.
 Lott, H. C.
 Lyman, E. A.
 McCrickett, Elizabeth
 C.
 McKay, F. B.
 McKenny, C. C.
 Norris, O. O.
 Peet, B. W.
 Pray, Carl E.
 Priddy, Bessie L.
 Sherzer, W. H.
 Smith, Bertram G.
 Strong, E. A.
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 McCrae, Adelia
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OTSEGO
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PAW PAW
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- PETOSKEY
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Burnham, Frances A.
Doolittle, H. S.
Feige, Elsa J.
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Goodfellow, Mabel B.
Hallenbach, H.
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Daboll, Winifred C.
Randall, Josephine
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Wood, F. A.
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Campbell, Katherine
- SOUTH HAVEN
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Canfield, A. G.
Cooley, M. E.
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Cross, A. L.
Davis, C. O.
Dow, E. W.
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Ficken, R. O.
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Ford, W. B.
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Hildner, J. A. C.
Hollister, R. D. T.
Jackson, G. L.
Karpinski, L. C.
Kelsey, F. W.
Kraus, E. H.
La Rue, G. R.
Lasher, G. S.
Lee, Alfred O.
Leverett, Frank
Lichty, D. M.
Lorch, Emil
Markley, J. L.
Meador, C. L.
Moore, Samuel
- Moriarty, W. D.
Nelson, J. R.
Newcombe, F. C.
Pollock, J. B.
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Van Tyne, C. H.
Wenley, R. M.
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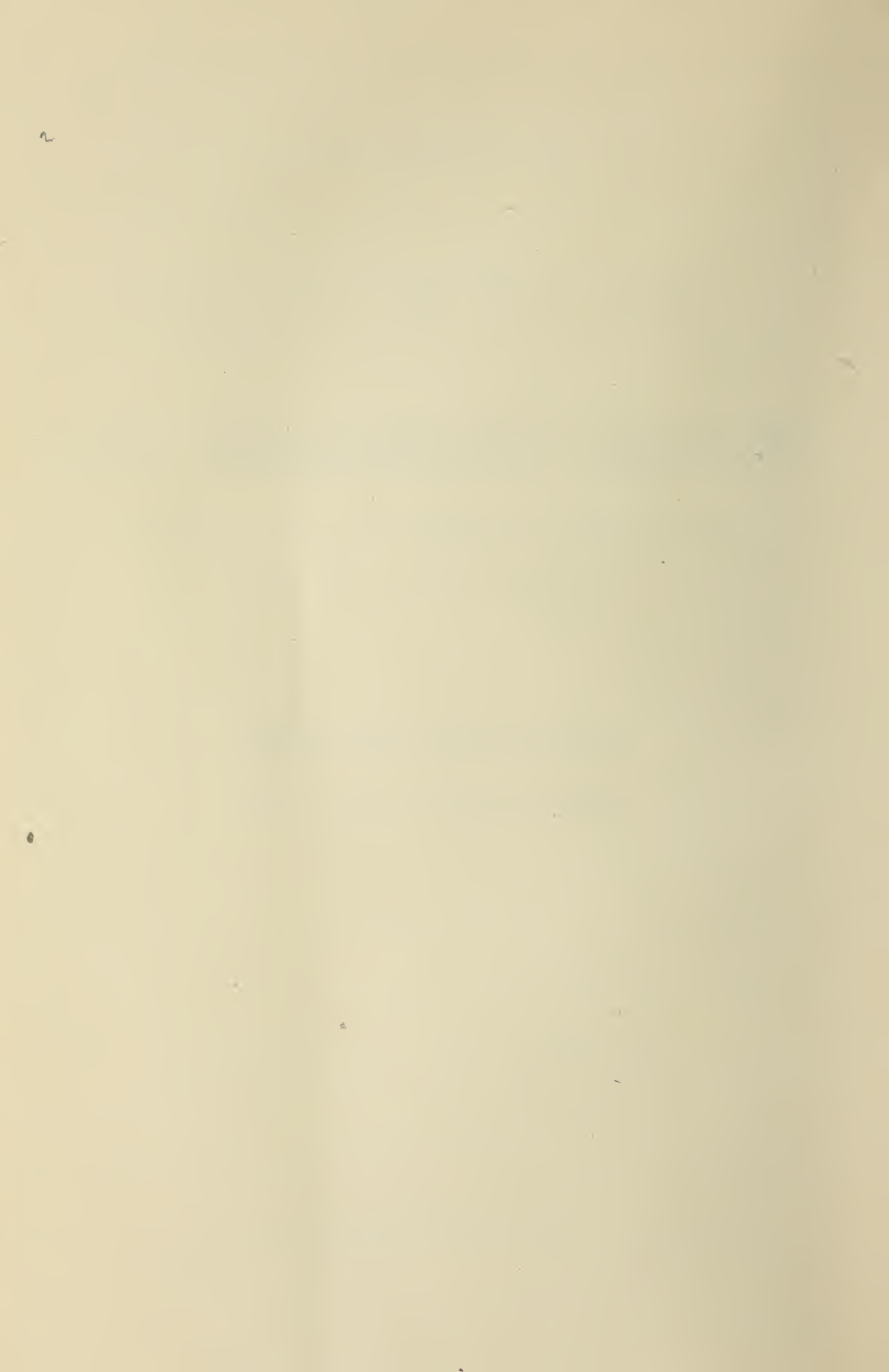
OF THE

Michigan Schoolmasters' Club

FIFTY-FOURTH MEETING

Held in Ann Arbor, April 3, 4, 1919

**ANN ARBOR, MICHIGAN
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5

TABLE OF CONTENTS

	PAGE
Editorial	7
The Use of the Problem Method in History Teaching... <i>Samuel Levin</i>	9
Physics as a Profession	<i>E. P. Hyde</i> 15
A New Aid in Chemical Engineering.....	<i>H. Spurrier</i> 25
For the Library of the Teacher of Physics.....	<i>Committee Report</i> 29
Navigation	<i>R. H. Curtiss</i> 32
The Future Beginning Course in College Zoology.....	<i>A. F. Shull</i> 37
The Distribution of Man.....	<i>B. G. Smith</i> 41
Geography Then and Now.....	<i>G. L. McCulloch</i> 51
Geography as a Practical Subject.....	<i>A. R. Gilpin</i> 55
Exhibit of the Art Conference.....	62
The Content of Psychological Courses in Teacher-Training	
Curricula	<i>H. C. Lott</i> 63
High School Libraries Conference.....	72
Synopsis of Business Meeting	74
Program of 1919 Meeting	83
List of Members	97
Advertisements	109

Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-FOURTH MEETING, HELD AT
ANN ARBOR, APRIL 3, 4, 1919

EDITED BY THE SECRETARY

GENERAL MEETING

During the week of April 1 there met in Ann Arbor most of the important educational organizations of the state. These were the Michigan Association of Superintendents and School Boards, Short Term Institute, Classical Institute, Michigan Academy of Science, Michigan State Federation of Teachers' Clubs, Michigan Interscholastic Athletic Association, and the Schoolmasters' Club.

The general sessions of the club were held on Thursday and Friday mornings. On Thursday morning a joint session was held with the Short Term Institute, when President Henry Suzzallo, University of Washington, gave an address upon "Social Changes Affecting Secondary Education;" and Professor Guy M. Whipple, Carnegie Institute of Technology, Pittsburgh, Pa., lectured upon "How the Psychologist Measures Intelligence." The auditorium of the Natural Science Building, where the session was held, was filled to overflowing, and we regret that many members could not gain admission.

On Friday morning the largest meeting in the history of the club was held in University Hall. The following was the program: "Continuing War-Time Activities," by J. V. McNally, State Director School Thrift and War Savings Campaign, and H. S. Earle, State Director United States Boys' Working Reserve; "Measured Results of Supervised Study in Michigan Schools," by Professor F. S. Breed, University of Chicago, formerly of the University of Michigan, and presented by Professor C. O. Davis, University of Michigan; "Reconstruction in History Teaching," by Professor Henry Johnson, Teachers' College, Columbia University; "A Study of the Retardation of the First Semester of the Ninth Grade," by Professor George L. Jackson, University of Michigan.

Prof. Breed's report was published, by consent, in *The School Review*,

Vol. XXVII, No. 3, March, 1919, and reprints may be obtained by members of our club who already have not received any, by writing to L. P. Jocelyn, Ann Arbor.

The University lectures given by Professor A. T. Clay of Yale University, upon "Researches in Bible Lands;" by Professor Charles Upson Clark, American Academy in Rome, upon "Italy After the War," illustrated with views furnished by the Italian Government, and by Mr. Gerald H. Thayer, New York, upon "Camouflage in War and Nature," were largely attended and with much pleasure and profit.

A special meeting of the club was held on Thursday evening in the High School Auditorium when President Chas. McKenny, Superintendent W. W. Warner, and Mrs. Edith V. Alvord took part in the symposium: By-Products of Increase in Teachers' Salaries.

Special mention should be made of the Latin play in English, "The Much-Woo'd Maiden," given by the Classical Club of the University.

The meeting was the largest in the history of the club, exceeding that of any previous meeting by over three hundred members.

HISTORY CONFERENCE

THE USE OF THE PROBLEM METHOD IN HISTORY TEACHING

MR. SAMUEL LEVIN, CENTRAL HIGH SCHOOL, DETROIT

Today more than ever before is the question of history teaching singularly important. On one side the conditions and the problems brought to the foreground by the great war require on the part of the people of America an understanding of pressing and fundamental issues, national and international in scope; a responsiveness to progressive principles, and a discriminate judgment. And yet how well prepared are men and women, whose minds have never in the past been pried open to the light of history, to formulate sound judgments about the claims of the Poles, the Czecho-Slavs, or the Jugo-Slavs; how well prepared are they to define President Wilson's criticism of balance of power, and to support the new program of America, that of international association and international responsibility? Certainly there is needed some substratum of historical knowledge if there is to be the right sort of thinking about these things. But granting this unprecedented need for history, teachers must, nevertheless, admit that history has failed to hold a place of vantage in the schools. Despite the grim persistence and sedulous application on the part of well meaning teachers to get the better of unwilling pupils, they do not seem to succeed much better than to leave with them stray bits of information; specks of knowledge, as it were, touching only the surface of the mind.

It would serve no purpose to deny that the material of history, as taught in the past, has, in general, not been the sort of material calculated to hold fast the student's interest or to impress him with any sense of its practicability. History has failed to suggest itself as significant. "What is it," so students have been wont to ask themselves, "if not a study of empires and peoples which are no more; of generals, statesmen, and kings, who for many years have been mouldering in their graves; a study that packs one's head, and that in a treadmill sort of way, with memory facts concerning a dead past, facts which have not the slightest bearing on the life and problems of the day; a study that does not help one to get started or to become proficient in the conduct of one's job, business, or profession?" As against physics, zoology, chemistry, perhaps even sewing and cooking, history to the average school boy and girl has been too much like the ceremonial of an initiation, which one must needs go through to belong to the society of the elect, those who are the proud possessors of the insignia of graduation.

Such criticism is based on the assumption that history does give knowl-

edge, but of the kind that bears to real knowledge the relation that the forgotten life of Nineveh bears to the vividly present life experienced in a metropolis like Detroit or Chicago. It is knowledge remote and unattached, and precisely because it is remote and unattached it is more akin to pretense than real attainment. And if this be the case, is it any wonder that in the economy of education other subjects are allowed priority rights? Promising no direct vocational or professional utility, failing to offer material which is directly and irrefutably contributive to the cultivation of mind and senses, or interpretative what Robinson in his *New History* has called "the problems and prospects of mankind," history has held a dubious place in the school curriculum.

Of course, there are other difficulties. History bears the odium of belonging to the category of subjects, strictly academic, and therefore, it need not, at least in the present complexion of things, expect abundant popularity. It is a subject that reaches out to the infinite. "In its amplest meaning," says Professor Robinson, "history includes every trace and vestige of everything that man has done or thought since he first appeared on the earth." It therefore does not lend itself to such pedagogical methodization as does arithmetic or Latin. The working material of history consists of abstractions, memory images, ideas, generalizations, concocted from a multitude of ingredients that pertain to biography, religion, military science, philosophy or politics. Added to all this, history has the reputation of dealing with a forgotten past, the life that was not and the life that is.

No question therefore is more vital to us than this: "What can the history teacher do to make the history courses contribute their utmost to the education of the coming citizen? An academic subject history must remain and certainly no less circumscribed in the future than in the past. Yet it is possible for the teacher to do a great deal by his own attitude toward the subject matter of history and by the way he brings the student's mind in contact with this subject matter; by a recognition on his part that whatsoever facts the pupil is asked to acquire, be they facts touching on the reign of Louis XIV, on the framing of the American constitution, or on the wars of Napoleon, they must be woven into the actual thought fabric of his life, they must be brought into organic association with the thought processes of his own experience, so that the history thus learned will offer the necessary data for the interpretation of the political, economic, religious, intellectual, and social phenomena of his own day, and for a knowledge of the institutions that he comes in contact with.

It is here that the history problem looms up as an instrumentality of inestimable worth. The closer history teaching gets to life, the more must it take on the shape of dealing with a succession of human problems. Life is pre-eminently a matter of grappling with problems in relation to one's family, vocation, religion, environment, government, habits, and a host of other things. A young man asks himself the question, "Shall I go to college or shall I take a job?" He hesitates long and considers carefully and thinks

of the reasons that dictate the one alternative or the other before taking the step which for the while is the solution of his problem. Another asks himself the question, "Which sort of man shall I support for this or that office? What party shall I belong to? What shall be my stand in regard to monopolies, big business, labor, prohibition, universal military training?" Everyone of these questions stands out as a challenge to his intelligence, judgment and understanding; everyone of these in other words is a problem, and by acting one way or another he solves it; perhaps unconsciously and unintelligently but solves it just the same. It is the business of the history teacher to improve and enlarge the thought material of the future adult and citizen, so that when he is met with such a challenge, he will be in a position to take it up on the basis of comprehensive understanding and not to use a recent phrase of President Wilson's comprehensive ignorance.

The history problem, therefore, is by no means an artificial thing. It is not a casual expedient or a mere accessory to learning by rote. The history problem is vital to the entire process of history teaching, for it must serve to endow any history with intellectual potentiality and facilitate the association of facts however remote with facts of the present. Thus can wars, kings, statesmen, scientists, otherwise of doubtful interest become amazingly important. A study of the New England confederation, of the German Confederation, or the Philadelphia Constitutional Convention might bring to mind some important truths applicable to the plan for a world league; a study of the oft recurring wars, in the history of modern Europe and the many inconsequential treaties, something about the weak spots in the diplomacy and the political order of the past.

A common way of presenting a history problem is to require of the student that he compare different periods, or governments, or characters; viz., the political aspects of slavery at the beginning of the nineteenth century with its political aspects at the middle of the century; or the government of the United States under the Articles of Confederation with that under the Federal Constitution. Similarly if applied to foreign countries; the history teacher might call for a comparison between the methods and the statesmanship of Cavour with those of Bismarck, or the working out of the plan of Italian unification with that of German; the principles of the Concert of Powers of 1815 with those proposed by President Wilson as a basis for a world league; the government of the United States with that of Great Britain. The ability to make such comparisons presupposes not only throughgoing knowledge of the items compared, but the ability to abstract and make explicit the vital facts that define the distinctiveness of the one as against the other.

The same sort of history problem may be put in such a way as to add a touch of personal interest, and to afford a more direct opportunity for the student's personal reaction; e. g. "Which of the two men appeals to you most, Cavour or Bismarck; why?" or, "If you were a resident of Alabama in 1860, which candidate would you be disposed to support for

the presidency?" The same information no doubt might be drawn simply by calling for the names of the candidates and a comparison of their chances before different classes of the Alabama electorate. And yet is there not an advantage sometime to be had by placing these matters before the student's mind in a more personal way, in having the individual make an effort at realizing himself living in a different age and environment and actually faced with the matter of making a decision on a matter of crucial importance. Thus does history stir up the interest that attaches to any sort of challenge, though in this case it must needs always be an intellectual challenge.

Another use of the problem method the teacher will find in the statement of a question or a proposition much like the question or proposition that ordinarily forms the subject for a school debate. Students may be asked to take sides on such issues as these: that the Congressional policy of reconstruction following the Civil War was a blunder, or that a woman suffrage amendment should be adopted, or that radical abolitionism was not a constructive solution of the slavery question. Certainly history teaching lends itself to this sort of thing, and if there be any advantage in training boys and girls to hold their own in debate, that advantage will accrue as a result of this method.

It is desirable, occasionally, to assign an exercise of this sort to the entire class or to select students with a view to special study and investigation under the teacher's guidance. In this way the history problem may be made an organ for the initiation of the student into the field of simple research, differing only in scope and degree from the investigation and organization of material that he would be obliged to carry out in the advanced work of history, law, and economics.

Where such problems are used it is always possible to adopt one of two methods. The first is to present a statement which is the affirmation of an uncertainty, a partial truth, or an untruth. The following problems will serve to illustrate this method. 1. The affirmation of an uncertainty; "I do not see what difference it makes if the constitution for a league of nations is prepared and accepted before or after the treaty, so long as it is prepared and accepted." The student, of course, is to discuss this from the point of view of his knowledge and give a well reasoned answer. 2. "The American Revolution was brought about by the British policy of taxation without representation." Now clearly this is not the whole truth, yet it is not altogether false. Would not the student's reaction show whether he has succeeded in grasping the more important causes of the Revolution, and in acquiring a fundamental comprehension of the term "taxation without representation?" 3. The affirmation of an untruth; "The Holy Alliance proves that the plan of maintaining peace by a concert of powers is futile." The second method is to quote directly from a state paper, a speech, an editorial, or a magazine article. For example, this quotation from a speech by Senator Poindexter in the Senate Feb. 19, 1919: "We ought to attend to our own business and follow the principles of Washington and Monroe."

Every teacher will recognize the tremendous possibilities found in such problems. It is astonishing to see with what interest the student takes them up, and what new significance he is ready to attach to history, once he comes to recognize that this study is the only one that offers him the necessary data to deal with these questions.

In a somewhat more direct way certain truths of history may be brought sharply before the attention of students, by requiring that reasons be stated for a given fact or condition, which fact or condition is suggested positively or negatively. Thus: "What will account for Jackson's anti-bank policy?" or "What will account for the failure of President Lincoln to come out sooner with his Emancipation Proclamation?" In the same line a student may, with caution, be asked to suggest ideas of his own, as "What, in your opinion, would have been the best plan to follow with regard to the United States bank or with regard to Emancipation?"

There is also the problem that calls particularly for the ability to abstract and particularize, and this based on a prior study of an important speech, an historical document, a biography, etc. After a careful study has been made of the Report of the Hartford Convention, a question may call for conclusions therefrom concerning the temperament, the political thinking, the partisanship, and the sectional sympathies of the New England Federalists. And so after a necessary background of required readings and discussions, generalizations brought out about revolution, democracy, war, imperialism, balance of power, nationalism and internationalism.

In this connection, too, it is desirable to habituate the student to the practice of applying his history to the problems and facts which are close to his life. Does the study of certain past wars help him to understand more clearly the salient facts of our own late war? Does the study of the work and the problems of the diplomats gathered to make peace in Europe in 1815 at Vienna, carry to his mind any lessons of great import concerning the work and the problems of the Congress now gathered at Paris?

Up to the present there has been altogether too little use of the problem in history teaching. And yet it is not a difficult matter to place questions before a history class, either in the course of recitation or as a part of the formal examination, cast in the problem form. Instead of putting the question, "What did the Stamp Act Congress do?" the question might call for a discussion of the proposition: "The Stamp Act Congress was of little significance as a factor in the Revolution." Instead of asking "What was the Embargo Act and Non-Intercourse Act, why not call for the difference between the two; instead of the terms of Hamilton's financial policy an explanation of the principles that dictated this policy?"

This, of course, does not mean that teachers must necessarily deal with the pupils in terms of the problem only. There will always be room for well selected questions that require a straightforward answer based on an accurate knowledge of facts. It is at this point where the demand for caution in the use of the history problem needs to be made unmistakably clear. A

history problem is worthless unless the student possess as a prerequisite a certain understanding and knowledge of the subject matter under discussion. Otherwise the exercise instead of becoming a discipline may degenerate into a sort of mental dissipation. A tyro may imagine himself able to formulate opinions and pass judgment on big issues of government and religion, the social and economic order, with a preparation that is too tenuous to speak of.

But the fact that caution must be exercised does not obviate the need for the sort of history that prospers by thinking and association and application to the needs and processes of life. Let every problem offered suit the student's age, the knowledge that he possesses or is required to possess, his capacity for thinking, and no serious difficulties nor misgivings need be entertained. The field of knowledge we well know, is unbounded. Concerning the historian himself, William Garrott Brown has this to say, "With all the things which were characteristic of his period, the historian ought no doubt to be familiar." But do not historians differ on many a question of fact or of theory? Indeed the historians of one day are wont to rewrite the story told by their predecessors, because neither the facts nor the judgments of history are indubitably stable. Where is the historian whose pronouncements and interpretations are accepted as unalterable? And if that is the case with the professional scholar whose knowledge must needs be profound, is it not preposterous to decry this method of history teaching for fear that it is not sufficiently prescriptive, or for fear that it might strain or sever the bands that connect the student with those facts of history which are deemed irreproachably correct?

May we not expect that the right use of the problem method will help to make history an intellectual discipline and a well spring of ideas instead of a memory task; that it will better enable the teacher to test the true capacity of the pupil, that it will make history serve one's life needs in connection with citizenship, business or profession? And also may we not expect on the part of the student, by virtue of this method, a better discernment of the true worth of history and therefore the possibility brought nearer for a wider utilization of history not for credit but for better living?

PHYSICS AND CHEMISTRY CONFERENCE

PHYSICS AS A PROFESSION

DR. E. P. HYDE, DIRECTOR OF RESEARCH LABORATORY OF NATIONAL LIGHT
CO., CLEVELAND, OHIO

Some five or six years ago, upon invitation of my friend, the late Professor Guthe, I spoke to an audience in this University on the subject "The Responsibility of the University in the Development of Pure and Applied Science." As a matter of fact, I paraphrased the subject at that time in the words, "Physics as a Profession," and it is therefore not unreasonable that I should present again for your consideration, in general, the same thoughts which I had at that time. For, although many changes have taken place in the last five years, I find that my views upon this subject have changed but little in respect to the end to be attained and the methods to be employed in arriving at it. But whereas five years ago I spoke about these matters as of the future, today I can speak of them, at least to some extent, as of the present.

Though we are inclined, while the horrors of war are still in the foreground of our consciousness, to see little of good in war, and to place upon that little a small valuation in contrast to the huge sacrifices that have been made, yet we must admit that war conditions frequently accelerate processes of advancing civilization in an amazing way, and there are many striking examples of this at the present time. I would refer particularly to the marked advance in general appreciation of the value of scientific research, and especially of physical research, in carrying out a successful military program and in the successful solution of industrial problems.

Shortly before war was declared, the National Research Council was appointed in direct response to a request from the President of the United States to the National Academy of Sciences. Men who in the past had devoted their energies to teaching physical science in the universities and to carrying out research in the more esoteric subjects of academic interest were called upon to lay aside their academic robes, and I would add, their academic traditions and prejudices, and to enter upon the task of solving real, live, practical problems of the utmost importance to the success of our cause in the great war. And I want here to express my appreciation of the sacrifices which they made and of the results which they accomplished. And yet I feel I must add, in a spirit of fairness, that when a final survey of accomplishment is made, it will be found that the largest practical results came from engineers and physicists of the large industrial corporation laboratories. Now that the war is over, by a Presidential decree, the National

Research Council will continue as a guiding and stimulating body, and one of its important functions will be the stimulation of industrial research.

And so I say that the past few years have seen a wonderful change in appreciation of the value of scientific research, not only in connection with special military problems, but also in connection with the everyday problems in industrial life. The entire dependence of many of our industries upon antecedent scientific research has, of course, always existed, but the realization of this dependence is only now coming to be felt and to be utilized. Every industrial achievement is traceable to some antecedent discovery of natural science, and I would venture to predict that every discovery of natural science will ultimately in some way and at some time be applied.

The cycle of the conception and application of scientific truth is of variable duration. In one epoch an hypothesis is conceived or a new phenomenon discovered; in another it receives experimental confirmation and is correlated with the rest of classified knowledge; in another it is applied to meet some human need, or to classify some human desire; and then we all forget its origin in the close familiarity of everyday life with it.

Illustrations crowd upon us in every domain of applied science. Indeed, the very term "applied science" records indelibly the scientific origin of those applications which have made their advent so recently that their parentage has not yet been forgotten.

In order that the accomplishments and the methods of physical science should become available in the industries, it is necessary that men trained in physical research should be introduced into the industries. Knowledge has grown beyond the stage where we might expect the engineer or the chemist to render the service which should logically be expected of an industrial physicist. It was possible for Leonardo da Vinci to be at the same time scientist, engineer, artist, diplomat and courtier, but anyone of the present day who should attempt to emulate the example of Leonardo da Vinci would find the curse of mediocrity upon him. It is a day of specialization. The thought which I wish to leave with you today is that of the responsibility of the educational institutions in the development of industrial physicists in addition to the performance of those other functions which our schools and universities have fulfilled in the past in the development of men of culture, of teachers and of investigators in pure science.

In the early years of American colleges, academic instruction was intended for general culture and for the training of teachers, and incidentally, in that general culture and training of teachers, physics and the other sciences played a much less important part than they are playing at the present day. Later, as the colleges developed into universities, two other functions were added to those which the department of physics already performed, viz., the teaching of physical science as an auxiliary to a career in some other department of science or in some profession, and secondly, the training of men for the pursuance of research in pure physics. The time is

now coming, as I take it, when to these four functions of a department of physics in a large university there must be added a fifth, viz., that of training men competent to go out into the industries of the nation qualified as physical investigators. This fifth function is peculiarly a function of the graduate department, for I do not believe in the advisability of such specialization in undergraduate work, nor do I believe in the advisability of the industries accepting men having only such undergraduate instruction for positions requiring knowledge of the principles and technique of scientific investigation.

You are no doubt asking what part the colleges and secondary schools have in this program. This inquiry opens a large field of thought and speculation. In my judgment, the program logically begins in the colleges or even in the secondary schools, notwithstanding the fact that the specific training is not begun before the student reaches the university. The principal function of the colleges and secondary schools in carrying out this program lies in the inspiration of the students, in their early life, to consider physics as a possible profession in life and to look forward to it and so order their training, so far as it may be elective, with this end in view. You teachers know how frequently the germs of a life career are sown in the minds of a student while he is still studying simple arithmetic or elementary physiology. The father or some esteemed friend of the boy may be a successful physician, and he practically begins life with the thought that he would like to be a physician when he has attained to manhood. In the same way, he may early determine to enter law or one of the other professions; to become a teacher or to prepare himself for a business career. I realize that the selection of a life career is not always, and perhaps not usually, made in the early years of a student's life, but I am inclined to believe that in most cases the ultimate selection of a career is made out of a comparatively few possible vocations with which he has become familiar and in which he sees opportunity of useful service and of success.

At the present time, a student would look forward to advanced work in physics as a preparation only for the profession of teacher, and there are comparatively few who consider the prospect of life as a teacher with specialization in physics sufficiently attractive to claim them. Until industrial physicists become as numerous as doctors and lawyers and men of business, the student must look for inspiration to enter this profession to the teachers of elementary physics under whom he comes. It will be because of the prospects of the future in this profession presented to him that he will enter the university to pursue his study of physics.

Many young men who would find no interest in the career of a teacher and who would otherwise enter commercial life, might find the outlook in professional physics promising and seductive. And not only will more men who study advanced physics enter upon industrial careers as the appreciation of its possibilities become known, but more men will enter upon the study of advanced physics with this particular goal in view. I have received

letters from young men asking where they might successfully pursue the study of physics with a view to entering upon industrial careers, and for every one of these who out of their own consciousness foresee an interesting life work for which they desire preparation, there will be many when the inspiration has been given them and the educational facilities for preparation are provided.

This discussion leads at once to the consideration of the two following questions: (1) What is the present condition of the employment of physicists in the industries? (2) What is the present demand and what might reasonably be expected to become the demand in the industries? In propounding these two questions in my discussion of the subject five years ago, I replied to the first to the effect that "there are at present comparatively few men employed in the large industries of the country as industrial physicists, and those who are employed in such capacity have, so far as my knowledge exists, been secured by the industrial organizations only within the last few years." There are still comparatively few men employed as industrial physicists in the large industries, but the number at present employed far exceeds the number of those that were engaged in this occupation at that time. Indeed, at that time I could almost count the industrial physicists on the fingers of my hands and I referred individually to the majority of these. At present, that is impossible. Every few weeks I hear of some physical laboratory connected with an industrial corporation, and undoubtedly there are many men of whom I have no knowledge who have been trained as physicists and who are now employed as industrial physicists, and yet we have but scratched the surface of the possibilities of the employment of trained physicists in the industries. What would you say if I were to tell you that in one of the largest steel corporations of the United States there was no industrial physicist to introduce the method of pyrometry in controlling the temperature of molten steel, and yet I recently heard a representative of this industry state that in making steel of certain kind it was necessary to have the temperature at times higher than that which produced the desired product in order that through observation of cracks in the steel, owing to the excessive temperature, the workers might be certain that the temperature in the furnace had not been too low. It would seem thus that the steel industries among many others are still virgin fields, so far as the employment of industrial physicists is concerned.

Contrast with this relatively small number of industrial physicists the enormous number of men trained in our universities in the department of chemistry who are making industrial chemistry their life work. It is probably safe to say that no technical industry could aspire to be a force in the industrial world that did not have, not one, but a half dozen, or more, men employed as industrial chemists. I shall not undertake to discuss reasons for the relatively large development in industrial chemistry as compared with industrial physics. It is sufficient, I think, to consider the question of industrial physics as a profession on its own merits.

This leads to the consideration of the second question which I propounded above, viz., "What is the demand and what might reasonably become the demand for physicists in the industries?" In reply to the first part of this question I would say that there is already being exhibited an increased appreciation on the part of certain large industrial corporations of the value of the employment of men trained in physical research. Professor Randall in asking me to speak before this conference today stated that he was receiving more requests for trained physicists to enter the industries than he could provide, and that therefore he thought it would be pertinent to discuss before you the opportunities in industrial physics in order that more students may be encouraged to pursue graduate work in this department.

I would refer to another circumstance which is enlightening. Several years ago we established in Nela Research Laboratory a fellowship in industrial physics, provided by Dr. Charles F. Brush, and known by his name. This fellowship was intended for young men of promise who had secured a thorough training in physics in one of our universities; who had shown capacity in research, and who would enjoy an opportunity of further research in a laboratory connected with an industry. Four men so far have been resident at the Laboratory on this fellowship, and of these four, the first three subsequently accepted positions with industries other than our own, and without any suggestion or assistance on our part. It is striking, apart from these men, that in nearly every case of which I know, the man who has been retained by the industrial corporation is one who had become appreciative of the value of physics in the particular industry and had become acclimated to some extent to an industrial atmosphere. And I would be inclined to predict that if any man appeared now, well trained in physical research, appreciative of the possibilities and value of physical research in any industry, and acclimated to the industrial atmosphere, that man would find excellent employment in the industry for which he was fitted. There has not been a long string of applications to universities for men trained in physics because the industries have not become appreciative of the possibilities of advantage in having trained physicists in their employ, but it is only necessary that a man with the proper qualifications be introduced to the broad-minded executive heads of our large industrial corporations in order that the value of employment of such a man should be realized. We can scarcely expect that these men of affairs, even with the imagination which they must have to administer successfully large industrial corporations, should of themselves conceive that tucked away in the cloisters of the university research laboratories are men with ideas and knowledge who could be trained to be of distinct value in industrial progress. It remains for us to present the large potential advantages of the employment of such men to the executives of industrial corporations.

Let us consider for a few moments the reply to the second part of the question. Not only do I ask "What is the demand for industrial physi-

cists?" but "What also might reasonably become the demand for industrial physicists?" As I stated before, Professor Randall reports that there is at present a large demand and in the foregoing discussion I have already intimated the possibilities. The complete answer, I take it, is to be found in the demonstration of the existence of physical problems, requiring physical problems, requiring physical research for their solution, in the numerous and varied industries of the country. It is impossible in the available time to consider this question in connection with the many industries to which it is pertinent, but it may be enlightening to consider the question with reference to some one industry, and let us take as this industry the one which I am most familiar, viz., the industry of lamp manufacture.

It takes but a moment's consideration and very little argument to show the possible value of properly trained physical investigators in this industry. The object in view in the manufacture of electrical incandescent lamps is to secure an illuminant which in proportion to its cost of manufacture and its cost of operation will have the greatest amount of light for the longest time and will give that light under conditions which most nearly fulfill our ideal specifications with regard to the quality of the light and with respect to other characteristics. In every stage of manufacture we are encountered with physical problems. For example, how is it possible to secure a filament which will transform more than 5% or 10% of the energy supplied into useful light? How is it possible to mount the filament in a bulb in such a way as to secure the smallest loss of energy at the supports of the filament, compatible with a reasonable hardness of the lamp? How is it possible to modify the quality of the light emitted by the highest temperature sources in order that this yellowish light may be transformed into light of daylight quality? How is it possible to reduce the blinding glare of the new gas-filled lamps without a large sacrifice of efficiency? Some of these questions have been partially answered and some have not. They are merely samples. In every department of lamp manufacture there are problems of a physical nature, some of which have been solved by engineers and some of which, no doubt, can be solved by engineers, but many of which need for their solution the attention of a man trained in physical research. The situation in the lamp industry is illustrative of that in other industries and I have no doubt that any trained physicist who would give his attention to the industrial processes in the manufacture of other products would see no end to the usefulness of men trained in physical research under such conditions that they would be acclimated to an industrial atmosphere. I have already referred to the steel industry. Even a layman can see innumerable opportunities for valuable assistance on the part of a trained physicist in this industry. In the ceramics industry, I am told, there is very little knowledge of the relation between the physical properties of the product and the composition of the ingredients.

We come now to the all important question as to how the profession of industrial physics is to be developed. This profession cannot be devel-

oped in a year nor can it be developed entirely by the universities alone. There must be mutual appreciation and effort. The industries, in my opinion, have gone ahead of the universities in this matter. They have taken into their employ men who have supplemented their university training by such experience as has brought about a change in their hitherto academic attitude to that of real appreciation of the value of physical research in industrial development. I have seen in the past very little evidence on the part of the universities to meet the industries half way in this regard.

What then is the way out of this difficulty? Is there any method to be suggested by which the university might fulfill this new function of developing men fitted for the profession of industrial physics? I do not feel personally qualified to assume the responsibility of answering this question as it should be answered, and before even attempting to suggest a few ideas for your consideration in this regard, I want first to make perfectly clear my attitude on the question of pure physics, if you will pardon the personal reference. Leaving the Johns Hopkins University, permeated with the highest ideals of pure science and with a full grown repugnance to the very idea of science with any other goal than that of "Truth for Truth's Sake," I entered into the employment of the Bureau of Standards in Washington. The early years of my service there were unhappy because of the very conflict between my lofty scientific ideals and the nature of the work which I was very naturally called on to do. It was some years before I became even partially adjusted to the new order of things, and even now when posing as an exponent of industrial physics there rushes over me a feeling of the incongruity of it all, for my ideals of pure science are as high as they ever were. I would not, therefore, for one moment suggest that the departments of physics in the universities in this country should undertake the development of industrial physicists if the assumption of such function would react to lower the high ideals of pure science. May the ideals of pure science in our American universities be raised ever higher, but may there be added, as a supplement to the older ideals and not as a substitute for them, the new ideal of developing men who will be able to bring the best in modern scientific training to the industrial development of our country and so to add to the material prosperity and happiness of the race!

To return now to the suggestion of ways by which the university may co-operate in the development of physics as a profession, one way which very naturally suggests itself is through the establishment of a department of industrial physics adjunct to that of pure physics. At the present time, however, this probably is not practicable, although there are even now some young men with sufficient foresight who, looking forward to employment in a professional capacity in industrial organizations, are seeking a place where suitable training for this life work may be obtained. Still I am inclined to think that probably there are not enough men of this kind to justify the establishment of a separate department at the present. I am inclined to think, however, that the institution which would give attention to

training in industrial physics would soon find the enrollment of students for a course of such training sufficient to justify a separate department for this work. The fulfillment of this belief rests upon the inspiration of young men and boys to see the opportunities ahead and to be able intelligently to choose industrial physics as a profession. It is unnecessary to repeat here what I have already said that here is where your opportunities as teachers of colleges and secondary schools lie, and it is with the hope of helping you to obtain a broader conception of the possibilities ahead in this profession that I have come to speak before you today.

In the meantime, cannot the university in its graduate department of physics perform a real service by broadening the scope of both lecture and laboratory courses in order that such students as may so desire may find it possible to become better fitted for a career in industrial physics? There are two ways of doing this. It might be feasible to establish a corps of non-resident lecturers who would deliver lectures on physical questions arising in the various industries, and who might even advise in regard to a laboratory course along this line. I realize that at first there would be difficulty in securing the proper men to deliver such lectures but I believe this difficulty would be temporary.

The second way in which the universities might begin at once in the encouragement of men desirous of entering physics as a profession would be to establish a closer contact between the departments of physics of the universities and those industries whose industrial processes have a physical significance and a physical interest. If the class in physics, and this would also apply to college and even secondary schools as well as to the graduate students, were taken on trips to near-by industrial plants, and there, under proper guidance, shown the industrial processes, care being taken to emphasize as far as possible the physical problems which arise in connection with such industrial processes, these trips would no doubt awaken some young men to the possibilities of a career in industrial physics and might inspire them with such desire for entrance upon this profession as would dominate them throughout their academic work.

These are only suggestions which are made in the hope that they may stir you to a consideration of this subject, rather than that they should be insisted upon as the only ways in which the desired results can be accomplished.

In closing, perhaps I may be permitted to speak somewhat regarding the institution with which I am connected, namely, the Nela Research Laboratory of the National Lamp Works of General Electric Company, particularly as this Laboratory is probably unique among the research laboratories of industrial corporations.

To present an intelligent account of the aims, the organization and the work of Nela Research Laboratory it is necessary that a clear conception of research and a discriminating appreciation of the various kinds of research are assured. What is research? Knowledge comes to us at times

unsought and unexpected. Discoveries are frequently fortuitous. But by research is meant the diligent, continued or laborious search after facts and principles; and the goal of research is truth. This is a most important point. Whatever may be the ulterior motive in the acquisition of truth, whether it is truth for truth's sake, as in the ideal of pure science, or truth as a firm foundation for judicious practice, as in the ideal applied science, the immediate goal is all research work worthy of the name is truth.

In passing, it is important to note that two kinds of applied science, namely industrial science and engineering, are to be distinguished. The training and functions of the industrial scientist are markedly different from those of the engineer. This distinction frequently seems to be ignored in the literature on the subject. In the present paper, engineering will not be considered since it plays no large part in the work of Nela Research Laboratory.

Confining ourselves, therefore, to pure and industrial science, it is again necessary to differentiate among various kinds of scientific research. It has been said that investigation in pure science is largely, if not entirely, the function of scientific investigators in the universities and that industrial science should be pursued largely in the laboratories of industrial corporations. I do not believe this to be true, for there are various kinds of pure scientific research, and university men are not disposed or equipped to cover the entire field of pure scientific research. At least two kinds of scientific research in pure science are to be distinguished; first, that which may for want of a better term be called *extensive* or *marginal* research, and secondly, that which may be called *intensive research*. By the first I mean research of that kind which extends the boundaries of our knowledge. It is frontier work and has little to guide it other than the imagination of the individual men engaged in it, operating on the ground work of present knowledge. The epoch-making work of the last decade or so on the ultimate constitution of matter is an excellent illustration of the kind of research which I have in mind under this class.

Intensive research in pure science is a quite different matter. As the pioneers enlarge the boundaries of knowledge, there must come behind them a large army of workers who cultivate intensively the new territory which has been opened up. Such institutions as the Rockefeller Institute for Medical Research, the Geophysical Laboratory and the Department of Terrestrial Magnetism of the Carnegie Institution of Washington are excellent examples of laboratories whose chief function, I take it, is the pursuance of intensive research work. It is in this field of work that pure science laboratories under industrial support may legitimately, and indeed should logically, be included.

To these two fundamentally different classes of research work in pure science may be added a third which owes its existence to the highly developed specialization which prevails and to the peculiar conditions which, I believe, in general exist in universities. I would call this third kind of re-

search work in pure science *co-ordinated* research. Much valuable knowledge lies in the "No Man's Land" between different branches of science. One of the striking characteristics of the work of Von Helmholtz is the cultivation of the field between physics and physiology. In the present day of highly developed specialization, a man is seldom found who possesses the qualifications for investigation in one of the middle grounds of science and our university departments are so organized that the co-ordination necessary for the investigation of some middle ground of science is wanting, if not impossible. Here again specially organized laboratories are required and here again the Geophysical Laboratory may be mentioned as an illustration of the importance and value of such co-ordination.

To these various kinds of research work in pure science is to be added the research work in industrial science and with this classification in mind it is a simple matter to describe the aims and the work of Nela Research Laboratory.

This laboratory, organized primarily as a laboratory for pure science, was intended to be engaged in the fields which I have classified as *intensive* research and *co-ordinated* research in pure science. More recently a section of industrial science, or as it is denoted here,—applied science, was added. The laboratory was organized in the fall of 1908 for the purpose of studying intensively all classes of scientific problems having to do with light. Since these problems are not entirely of a physical character, the organization was made such as to include work in physiology and psychology. It is seen, therefore, that the laboratory would logically have as one of its aims, in addition to the intensive research work in the various sciences represented, the cultivation of those middle fields which lie between physics, physiology and psychology in their relation to light. This in a word gives the principal aim of Nela Research Laboratory, though, as was stated above, more recently a section of industrial science has been added and no small part of the work at present is carried out in this division.

The personnel of the laboratory consists of eight physicists, two physiologists, a psychologist, six laboratory apprentices, three stenographers, a mechanic, a lamp maker and an engineer. Of this staff, three physicists and three laboratory apprentices give practically their entire time to problems in industrial physics. The lamp maker, an experienced man in lamp manufacturer, occupies a room in the basement equipped as a small but complete lamp factory and is thus prepared to make all kinds of special lamps which are required in the various investigations.

In addition to the regular staff, the laboratory at times provides space and equipment for outside workers, at one time as many as seven such outside investigators sharing our building and equipment with us. The facilities of the laboratory are extended to outside investigators under various arrangements. It has been the policy of the laboratory for several years to invite three prominent investigators to spend the summer here as our guests. I have already referred to the Charles F. Brush fellowship, the ob-

ject of which is to permit exceptional young men who have completed their university work in physics to spend a part of a year in the pursuance of an investigation under conditions such that an appreciation of the value of physics in industry may be secured. To these two classes of guests of the laboratory should be added individual workers who, having special problems consistent with the work of the laboratory, have requested permission to pursue their investigations here.

We feel it to be one of the functions of the laboratory to stimulate, in every possible way, research work along the general lines of activity in which the laboratory is interested, and in particular to promote a broader appreciation of the value of physics in the industries and to encourage a closer co-ordination of pure science, industrial science and engineering, and to this end no little time and effort are spent in connection with the various engineering societies connected in one way or another with the broad question of lighting.

In conclusion, I want to apologize for the fragmentary and unsatisfactory presentation of this subject and the all too frequent reference to the speaker's associations and the speaker's opinions. As the subject, however, is inherently one of opinion rather than of established fact, I see no other way of presenting it. If, as a result of the thoughts awakened in your mind today, there may come to you a broader conception of the opportunity for industrial physicists and of the increasing responsibility of the university in the development of industrial as well as in the development of pure science, and if in particular there may come to you a new conception of the value of physics as a profession, the speaker will feel that he has accomplished his purpose.

A NEW AID IN CHEMICAL ENGINEERING

MR. H. SPURRIER, JEFFREY-DEWITT PORCELAIN CO., DETROIT

It gives me great pleasure to speak to the Physics and Chemistry Teachers' Club. Place and subject are alike dear to me, the former on account of the natural charm and the latter as a lifelong form of delightful activity that while offering a livelihood, has made each day a day of pleasure and each achievement a cherished memory.

In these subjects, if we do not realize infinite variety, there is nevertheless, a supply, entirely unexhaustible so far as we are concerned. For instance, one interested in osmosis may speculate upon its role in the well being of the tiny microspore or indulge in speculation as to its activities in raising sap to the top of the giant sequoias of California. The altitudes and latitudes of space may be our realm to today and tomorrow we centre our

quest on the wave of length of the spectral lines. There should be found nothing confining in these subjects, but they should be found the fertile soil of mental audacity and untiring industry.

RECENT EVENTS

The recent national demand for young men of industrial age, has rendered of particular value any aid of an automatic or labor saving nature, particularly desirable in the chemical industries. Intensive production has made extensive demands upon trained technical supervision, and any contribution that shall render more accurate service, render operations less laborious, or render control more easy and reliable, is a direct and welcome asset.

IMPORTANT CONSTANT

The weight volume relation has, since the days of Archimides, who first applied it in a practical way—been of increasing importance until, today, it has become a “constant” of crucial concern and well-nigh universal application. In view of this general dependence on a knowledge of Specific Gravity relations being appropriated by those not so well informed as might well be desired—one hears of amusing incidents.

A certain salesman, who was trying to close a deal for a large quantity of ground pumice, was catechised as to the specific gravity being too high, glibly replied, “that the specific gravity was all taken out of their product.” However, such incidents are now, fortunately, of diminishing frequency.

HISTORY

The history of the evolution of the volume density relation is exceedingly interesting but being somewhat voluminous, only scant attention can be accorded to it at the present time.

It would be inexpedient to relate in detail the trite story of Archimides and Hiero but as this incident marks the historic starting point of our subject, it may be well to here record the date—viz., 287-212 B. C., and as the Kentucky schoolman stated that such dates are so far back that B. C. represents 'bout correct. For about three hundred and thirty years we have little account of any advance and till, in the reign of Trojan, A. D. 98-117, Menelaus, a Greek mathematician set up a water balance, a great gap in time took place, till in the Twelfth Century Alhazen, an Arab optician and physiologist conducted experiments with the balance of wisdom remarkable alike for their completeness and accuracy.

Other Orientals about this time added greatly to experimental technique and achieved results far in advance of the Ancients.

In 1157 during the reign of Sultan Saljuke Sangar, Caliphate of Bagdad, Al Khazini enunciated the advantages of the balance of wisdom and in item No. 7 states that “it enables one to know what is a genuine precious stone such as hyacinthe, ruby, emerald, or fine pearl, for it truly discriminates between these and their imitations or similitudes in color made to deceive.”

A little later, Abur Raikan took observations on relation of different metallic bodies and precious stones one to another, Abur Raikan used and described a conical instrument—essentially a modified specific gravity flask.

Al Hazan describes an instrument devised and used by Pappus 380-400 A. D. which was essentially a hydrometer, graduated on the decimal system and using water as a standard. As far as can be ascertained this is the first mention of the hydrometer.

Down the annals of intervening time, scientific zeal and industrial activity have waxed and waned in pendulous alterations with social, political and religious disturbances, till, as modern evolution unmistakably indicates, the quest of science is a most handy preface to the quest of shekels.

INDUSTRIAL IMPORTANCE

The immense industrial importance of the specific gravity relation is attested by the large number of hydrometer scales, and the variety of devices in use to determine this relation. Thus we find in use amongst others, the Specific Gravity Hydrometer scale.

Baume, Twaddle, Sykes, Tralles, Alcohometer, Salometer, Lactometer, Nicholsons, and last of all industry has treated us to the Glueometer; moreover we have many other instruments such as the Pycnometer, Sprengel Tube, Jolly Balance, Westphal Balance, Gravity Beads, and Gravity Solutions.

DENSE SOLUTIONS

A somewhat interesting case of the application of dense solutions to the ceramic industry: underfired ware is of high specific gravity, mature ware is intermediate, overfired ware is of low specific gravity. Zn Cl₂ Thoulets liquid, acid nitrate of mercury—Klein's Solution—Competent inspectors latitude; $\pm .1$.

Dense liquid inspection. $\pm .001$ easily.

Not only is the specic gravity of the fired body important in the ceramic industry but of even gerater moment is the specific gravity of the fluid glaze which if either too heavy or too light, leads to defective ware.

FACTORY PROBLEMS

The control of the specific gravity of the glaze while being continuously pumped through a circulating system, presented not a little difficulty. The apparatus as finally evolved to effect the desired control, possessed the possibility of such wide application in many branches of chemical manufacturing that I felt it would be of sufficient interest to this Organization to describe and demonstrate in brief its construction and operation. For the purpose of identity the instrument has been named the "Gravistat."

WIDE APPLICABILITY

The principle is primarily, that of the Jolly Balance but modified to accommodate a constant volume vessel which is not usually submerged in a liquid.

SPRING CALIBRATION

For the purpose in hand, it became necessary to establish the functions of a spring under constantly increasing weight. The result of a large number of tests on a number of different springs weighted with different weights progressively, showed that the elongation was proportional to the increment in weight and therefore produced a straight line curve—this proved to be of very great advantage. In consequence a spring may be calibrated just as a burette would be but with greater accuracy.

The constant volume vessel is usually of glass and has a capacity of about 100 cc—usually but the volume may be increased in order to secure special advantage.

A soft flexible rubber tube connection serves to continuously supply a small portion of the fluid from the main, delivering it by means of a fused-in connection, to the bottom of the glass vessel, so displacing the superposed liquid which finds egress through an overflow tube also fused in—so securing constant volume.

It will be seen that the vessel will rise and fall by dint of any change in the absolute weight of the contents.

Advantage is taken of this to open and close an electric circuit making contact for premeditated maxima or minima of specific gravity. The circuit is effected as follows: Two electric cells, which in order to conform to the prohibition law are of the dry type, are connected to the binding post at the top of the tower, which also secures the coil spring, at the lower end of which is suspended the glass vessel by means of a bail, which engages two metallic lugs soldered to a brass retaining ring; on this ring is fastened a finger carrying on its superior side a small mercury cup, and inferiorly a platinum contact point; a two-arm adjustable bracket carries on the upper arm a platinum point capable of contacting with the mercury cup on the finger of the glass vessel. On the lower arm is carried a mercury cup

BALANCED VALVE FOR STEAM

capable of contacting with the platinum point on the inferior side of the finger. The bracket is connected by a wire to a relay which in practice is destined to operate a solenoid in control of a three-way cock or other desirable device. For the present purpose of audible demonstration, a buzzer has been substituted for the solenoid.

MODIFICATION FOR CORROSIVE LIQUIDS

In this case a solution of NaCl 1 gram in 99 grams water having a specific gravity of 1.007 will be contrasted with pure water.

SENSIBILITY

In experimental work differences of .0001 in specific gravity can be certainly detected with this particular spring which however could be made still more delicate with the proper changes in diameter, length and wire gauge, in fact an extraordinary latitude is possible.

1°C diff. in temp. will suffice for a reading.

The instrument is of course, not fool-proof any more than is the case with other instruments of precision amongst which this has earned the right to be classed.

The possible application of the Gravistat are manifold.

APPLICATION

1. It will control the flow of a fluid between very narrow specific gravity limits.

2. It will automatically make any number of gravity cuts, one instrument to each cut diverting the distillate, so as to be cared for by another instrument set for the next higher gravity cut, thus an oil still may be completely cared for.

3. It will mix automatically two liquids of any specific gravity to any other intermediate specific gravity desired.

4. It may be used with a clock and recording dial, so recording the various times required for distillates of varying gravity to run off.

5. It may be used to shut off steam and so stop a still when a distillate of given gravity has been attained.

6. It may be modified to detect variations in viscosity.

In these ways the Gravistat may lay claim to the program laid down—viz.: to render more accurate service; to render operations less laborious; to render control more easy; render control more reliable and accurate.

FOR THE LIBRARY OF THE TEACHER OF ELEMENTARY PHYSICS

In preparing this list the following points have been kept in mind:—

1. The list must be short. Of the many good books published recently a few especially good authoritative ones have been selected.

2. The books must be up to date. All in this list have been written or revised within the last ten years, half of them within the last five years.

3. The books must be substantial—popular books and hand-books, though valuable in their place and often interesting, and sometimes scientifically reliable, are omitted intentionally. At the same time the books in this list must be sufficiently elementary and non-mathematical to be understood readily by any good teacher of Physics.

4. The books are recommended primarily for teachers, and not for high school pupils.

Allen—Photo Electricity. 221 pp., \$2.10, Longmans Green, 1913.

Treats of the liberation of electrons by light, with chapters on fluorescence and phosphorescence, and photochemical actions and photography.

- Bragg & Bragg—X Rays and Crystal Structure. 228 pp., \$2.75, Macmillan, 1915. Discusses the interior architecture of crystals, and the fresh light X Rays have thrown upon atomic structure.
- Brooks & Poyser—Magnetism and Electricity. 647 pp., \$2.00, Longmans Green, 1914. An excellent general treatise.
- Bucher—Vacuum Tubes in Wireless Communication. 174 pp., \$1.75, Wireless Press, N. Y., 1918. A practical book with many excellent cuts. Author connected with the Marconi Co.
- Circular of the Bureau of Standards No. 74 Radio Instruments and Measurements. 341 pp., \$.60 (sold only by Supt. of Documents, Washington, D. C.,) Government Printing Office, Issued March 23, 1918. Probably the best and most authoritative work on this subject. Starts with the fundamental and elementary facts and progresses towards a thorough satisfactory treatment.
- Comstock & Troland—The Nature of Matter and Electricity. 203 pp., \$2.00, VanNostrand, 1917. Book attempts to give in broad schematic form the modern conception of the structure of matter. Radically elementary and popular in style. Pictures excellent.
- Duncan and Starling—Text Book of Physics. 1081 pp., \$5.50, Macmillan, 1918. An excellent general text.
- Edser—Heat: for Advanced Students. 492 pp., \$1.00, Macmillan, 1915. Not advanced; an excellent intermediate text.
- Edser—Light: for Advanced Students. 574 pp., \$1.50, Macmillan, 1915. Not advanced; an excellent intermediate text.
- Gage & Gage—Optic Projection. 731 pp., \$3.00, Comstock Pub. Co., Ithaca, N. Y., 1914. Aims "to give such simple and explicit direction that any intelligent person can succeed in all the fields of projection."
- Goldsmith—Radio Telephony. 256 pp., \$2.00, Wireless Press, N. Y., 1918. A descriptive, non-mathematical, readable book—many good cuts.
- Guthe—Definitions in Physics. 107 pp., \$.75, Macmillan, 1913. Should be in the library of every teacher of Physics.
- Kaye—X Rays. 252 pp., \$3.00, Longmans Green, 1914. An excellent experimental, theoretical, and historical introduction to X Rays.
- Miller—The Science of Musical Sounds. 286 pp., \$2.50, Macmillan, 1916. Essentially a series of popular lectures in sound analysis—excellent cuts.
- Milliken—The Electron. 268 pp., \$1.50, University of Chicago Press, 1917. A record of the author's own contribution to our knowledge of the electron.

- Mills—Radio Communication. 205 pp., \$1.75, McGraw Hill, 1917. Contains the substance of a course of lectures given to a company of U. S. Reserve Signal Corps. Contains considerable theory.
- Northrup—Laws of Physical Science. 210 pp., \$2.00, Lippincott, 1917. A reference book containing 480 laws, theorems and important facts, each stated in brief form.
- Perrin—Atoms. p11 pp., \$2.50, VanNostrand, 1917. Discusses atomic theory, Brownian movement, light and quanta, atom of electricity, genesis and destruction of atoms.
- Poorman—Applied Mechanics. 244 pp., \$2.00, McGraw Hill, 1917. Several hundred problems of college grade, accompanied by sample solutions and brief discussion of theory.
- Richardson—The Emission of Electricity from Hot Bodies. 304 pp., \$2.75, Longmans Green, 1916. Discusses the results of many experimental investigations on the subject of thermionic currents.
- Smithsonian Physical Tables, Sixth Revised Edition. 355 pp., \$2.00. Smithsonian Institution, 1914.
- Rutherford—Radioactive Substances and Their Radiations. 699 pp., \$4.50, Putnam, 1913. An exhaustive, non-mathematical discussion of the phenomena of radio activity.
- Timbie & Higbie—A. C. Electricity, 1st Course. 534 pp., \$2.00, Wiley, 1914. An elementary text in A. C. Electricity; contains many analogies.
- Tuttle—The Theory of Measurements. 303 pp., \$1.25, Dr. Lucius Tuttle, Jefferson Lab. of Physics, Philadelphia, Pa., 1916. A book every laboratory instructor should read.
- Wood—Physical Optics. 705 pp., \$5.25, Macmillan, 1911. Not an elementary book, yet containing very much elementary theory, with especial stress laid on the experimental aspect of the subject.

MATHEMATICAL CONFERENCE

NAVIGATION*

PROFESSOR R. K. CURTIS, UNIVERSITY OF MICHIGAN

The subject announced for consideration now may appear to be a hopelessly comprehensive one. It is, however, restricted very much in a program devoted to a discussion of Mathematics and the War and shall be limited still further by selection of a phase of Navigation which seems practical in connection with a session of teachers and students in Mathematics.

If there were time, we might find profitable an account of the experiences of astronomers and mathematicians who left their regular pursuits to help make officers for the Navy and Merchant Marine.

I have in mind an astronomer from the Yerkes Observators who for years had been occupied with the study of the spectra and distance of stars. Soon after war was declared he dropped Astronomical research and assumed charge of the Free Navigation School of the Shipping Board in Chicago. Every six weeks for nearly two years a class of sailors, sometimes with little qualification except two years' experience on shipboard, came to his school to be developed into licensed and commissioned officers in time to make room for the next six-weeks' class of eager aspirants. Altogether about 250 men have been developed into officers in this school since July, 1917.

Another astronomer left a similar program in pure science and in a little over a year gave practical instruction to nearly 500 men ranging from captains of large freighters down to apprentice seamen who had had no experience on shipboard—men of all professions, attorneys, salesmen, professional ball players—men ranging in age from eighteen to fifty-five. Many subsequently received commissions in the U. S. N. R. F. and many more were confident of doing so had the war continued.

Mathematicians also rallied to the cause but the astronomer often had the advantage of a practical knowledge of the principles of Nautical Astronomy including the use of the sextant, and was equipped in his department with sextants and chronometers for practical work.

It might be interesting also to discuss the reaction upon the conservative profession of Navigation due to the infusion of new blood. I think it no exaggeration to say that in two years, progress equivalent to the normal development in ten years was made in Navigational methods.

It might be appropriate, also, if time permitted, to consider the awak-

* It is regretted that it is impossible to reproduce the drawings and diagrams that were used to illustrate this paper when it was presented before the Mathematics Section.

ened interest in elementary mathematics consequent upon the requirements in Plane Geometry, Algebra, and Trigonometry, that were placed upon enlisted men who were training for commissions in the army and navy. Will a reaction set in next year or has the idea become current that an equipment of this kind should form part of the resources of every college graduate?

But it is our purpose in this paper mainly to discuss a very restricted phase of the subject: "The Practical Situations in Piloting Which Make Good Illustrative Problems in Elementary Plane Geometry and Trigonometry."

If by Navigation we mean the science or art of finding one's way at sea, Piloting is that branch of the art which is concerned with finding a ship's position and the best courses to the destination when within observing distance of landmarks and shore signals.

For completeness we might add that Dead Reckoning is that branch of Navigation which is concerned with the determination of position by reference to a previous position taking into account direction and distance sailed as given by compass and log. Astronomical Reckoning is that branch of Navigation in which the ship's position is determined by reference to celestial objects, by sextant and chronometer.

In piloting the ship is always assumed to be in danger. Positions must be determined quickly and must be far more accurate than those which suffice on the open sea. A complete sextant observation at sea requires several minutes to reduce and places the ship safely only within a circle four miles in diameter. Dead reckoning observations carried over a day may be 15 or 20 miles in error. A pilot must know the position of his ship immediately, often within a few yards. By the use of tables, graphical methods, or simple situations, and accurate charts of large scale, he converts an observation quickly into a useful chart position.

In problems selected from Piloting in Geometry and Trigonometry the use of charts is easily avoided by defining the relative positions of landmarks; and the result sought is usually the direction and distance of the ship from one or more of such defined points. Graphical or geometrical methods are important. Computation is of course substituted for Piloting Tables and the simplest situations, which appeal to the pilot in giving quick results, need not be selected. But it does seem desirable that the situations used should be reasonable ones of which the pilot would take advantage in actual practice.

In the technic of Piloting some of the old awkward methods of measurements are passing away. In the latest practice angular directions are measured from north in a clockwise direction through 360° thus introducing the general angle called *azimuth*. The degree is preferred to the old point of $11\frac{1}{4}^\circ$. The old names of the cardinal and intercardinal points are of course retained. *Distances* are expressed in yards and nautical miles; seldom in "cables" and "leagues;" soundings, in feet and fathoms.

Several situations which are used to get a "fix" or position in Piloting may be considered:

Two bearings from ahead. In this method a ship sailing on a known course observes the bearing of a landmark from the straight ahead direction, then sails a measured distance on the known course, and observes again in the new position the bearing of the landmark from the straight ahead direction. The "run" or distance sailed between bearings is then a side of a triangle, in which the angles are known, having the landmark and the two positions of the ship as vertices. The distance of the ship from the landmark at the second bearing or when the landmark is abreast of the ship is thus determined; and the direction of the ship from the landmark at either point follows from the "course" or direction in which the ship is steering. Exercises based on this piloting method are found in different text-books. It should be remembered, however, that there are usually one or both of two purposes in view when this situation is used; either to make sure that the ship will pass safely outside or inside some danger against which the landmark has been placed to protect the ship, or to enable the pilot to determine his distance off shore for guidance in shaping his course. In either case it is important to have the second observation completed before or when the bearing of the landmark is 90° from straight ahead. If it be desired to determine the distance of the ship from the landmark at the second observation the simplest method is to double the angle from ahead between observations, in which case the distance of the ship from the landmark at the second observation is equal to the run. The favorite pair of bearings in practice is 45° and 90° . It is said that the *Lusitania* was sailing a straight course between two observations of this kind when she proved an easy mark for an enemy torpedo. Pairs of bearings from ahead for which the distance at which the ship will pass abreast of the landmark is equal to the run between observations are: 29° — 51° ; 32° — 59° ; 40° — 79° . Such combinations, involving whole degrees, are naturally preferred in practice.

Radio and submarine signals. Important signal stations, such as lightships, are often equipped with "bells" or vibrators which send out submarine sound signals audible over a radius of ten miles. Such signals are especially useful under fog conditions, for a ship equipped with receivers on opposite sides of the hull can determine on the basis of the relative intensity of the sound in the two receivers the approximate direction of the signal station. If in addition the signal station sends radio signals simultaneously with the sound warning, the ship may determine its distance in yards from the station by noting the number of seconds elapsing between the arrival of the two sets of signals and multiplying this interval in seconds by 1570, for the radio signals arrive almost instantaneously while the submarine sound waves travel with a speed of 1570 yards per second. If between two such observations the ship sails a measured distance on a known course the data are then available to determine the direction and distance of the ship from the station at either observation.

Cross bearings. In this situation the pilot takes simultaneous bearings on two known landmarks. He then draws lines on his chart in the proper

direction through the landmarks and takes the intersection of these lines as the position of the ship. When worked out by trigonometry this situation is treated as a variation of the familiar baseline method for getting distances of inaccessible objects. There is a rule in piloting to the effect that a good position by cross-bearings is not obtainable from two landmarks which subtend an angle of less than thirty degrees or more than one hundred fifty degrees as seen from the ship. It is a simple exercise in geometry to delimit by circles the regions about two given landmarks within which a good position can be determined by cross bearings.

Danger angle and danger circle. In connection with the exercise last mentioned, another similar device in Piloting will be of interest. When two landmarks are available near a danger outside of which it is desired to pass, a circle (the danger circle) is drawn through the landmarks just large enough to include the danger. If then the angle subtended by the landmarks at the ship is kept no greater than the angle between two lines drawn from the landmarks to any point of the danger circle (the danger angle) the ship will not be in the danger circle. If it be desired to pass inside of the danger the danger circle is drawn to exclude the danger and for safety the angle subtended by the landmarks at the ship must be greater than the danger angle. Probably the graphical solution is preferable in this situation.

A bearing and sextant angle. When two landmarks are available a bearing on one may be taken by one observer and the horizontal angle subtended by the two landmarks measured with a sextant by a second observer. This fixes the position of the ship.

Two sextant angles. When three suitable landmarks are available horizontal sextant angles between any two pairs as seen from the ship will fix the ship's position. This method is one of the best because it is independent of the compass or the instruments used to measure the ship's run. The graphical solution is relatively simple. Each sextant angle determines a circle upon which the ship must lie; and the position determined is at the intersection of these circles, excluding, of course, the intersection at a landmark. In trigonometry the determination of position in this situation is sometimes referred to as Pothenot's Problem. Navigators usually set the angles off with a three arm protractor or on a piece of transparent cloth and place the one or the other on the chart so that the protractor arms or the direction lines on the transparent cloth pass through the landmarks. The center of the protractor, or the corresponding point of the transparent diagram, is then the ship's position, excluding indeterminate cases. When employing the method of two sextant angles the navigator must avoid the situation with the ship on the circle passing through the three landmarks. This is called the revolver circle because the center of the three arm protractor can revolve about a considerable part of the circumference of this circle and still satisfy all known conditions if the original observations have been made from a point on such circumference. It is important also that at least one of the angles should be as great as thirty degrees.

Distance by vertical sextant angle. This well known method of determining distance is modified somewhat in piloting because in general there are no means available of establishing a horizontal line. Heights of light houses are given above high water, and, since the tower may stand back some distance from the water line, it is sometimes important that the eye be placed near the surface of the water. Usually the angle measured is so small that its tangent may be assumed to be not different from the arc, in which case pilots use the formula:

Distance in Nautical Miles=

Height in feet $\times 0.565 \div$ Vertical angle in minutes

Buckner's Method. In this method the vertical angle of depression of the water line of an island or a ship is observed with reference to the horizon beyond from an elevated position of known height above the water's surface. With these data known, a piloting table gives the distance from a point of the earth's surface vertically under the observer to the island or other object observed. The solution of this problem by trigonometry furnishes a useful exercise. Problems of dip and distance of visibility, often found in books on trigonometry, are closely related to this situation. They need not be discussed here. It might be pointed out, however, that results obtained in these problems by calculation may not agree with those in piloting tables because in the latter atmospheric refraction is taken into account.

The rapid survey above can convey only a general impression of the problems mentioned. A good description of the situations and methods in piloting may be found in Bowditch's "American Practical Navigator," Chapter IV. A good background is also given in the same chapter.

Probably not many teachers have time to organize such material as this for incorporation in their courses. But text-book writers might find useful the introduction of exercises of this sort in place of or in addition to some of the time worn problems that have grown old in service in our school texts.

BIOLOGICAL CONFERENCE

THE FUTURE BEGINNING COURSE IN COLLEGE ZOOLOGY

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The nature of the first course in a science should not be a matter of untrammelled opinion, it should be determined by certain principles. If those principles can be agreed upon, the details may perhaps be varied without harm. I submit two propositions which I regard as almost axiomatic, namely, that the course should be representative, and that it should possess unity. If these propositions are valid, the remainder of my address may have some value.

To apply the first of these rules, it is necessary to have in mind the content of the subject. It seems to me a fair statement of the content of Zoology is one that makes that science include Morphology, Physiology, Taxonomy, Ecology, Geographical Distribution, Paleontology, and Evolution. These divisions are not mutually exclusive, but overlap, a circumstance which, far from being a misfortune, is of much value in connection with the second proposition to be developed later. Genetics might fairly be added as an eighth division, but its main features are either morphological, or physiological, or evolutionary.

The beginning course must contain the elements of each of these branches of the subject, if it is to be a *general* course. Whether the course should be general or not may be debated, but if it is to be general it must include something from each field.

The classical course in zoology is morphological, a dissection of types of the chief animal groups. Very little even of physiology has been included in it, until in recent years in a very few institutions. Such a course was the proper course once upon a time, when zoology was an almost purely morphological subject. But as the subject grew, the type course became a misfit. It has been a misfit for a long time.

Good teachers have attempted to ameliorate this growing inaptness of their courses by putting the non-morphological phases of zoology into their lectures and recitations. But the laboratory work has inevitably put on over-emphasis on the morphological side, and may even have over-emphasized the physiological. Not all seven of the branches need to be treated equally. Morphology deserves a greater share than any of the others, for each of the divisions is partly morphological. But a course on morphology alone (or nearly alone) can scarcely be representative. Unprotesting use of the type course means either that the teacher regards the content of zoology as Protozoa, Porifera, Coelenterata, etc., or that he is satisfied to administer an unbalanced ration to his students.

Quite independent of the foregoing consideration of the content of zoology is the question of unity of the first course. Whether the type course of the topic course be employed, that course should be unified. It should proceed step by step, one thing leading up to, and necessarily following, another. Unity has not been ignored by those who employ the type method, but they have justified their course by the evolutionary series which the animal scale is supposed to present. When the animal series was thought to be single and continuous, that was a fair assumption. But that notion of the phylogenetic tree has been largely abandoned, it is recognized that the animal series is a disjointed one. At least, if there are connections everywhere, they are so attenuated in places that even a superior student is unable to detect them. The step from an echinoderm to an annelid is not an easy one, nor the step from a mollusk to an arthropod.

The lack of unity consequent upon the employment of type dissections has long been recognized, and has led to a widespread notion that something is wrong with the beginning course in biology. One can not converse long with teachers of biology without encountering the question, what is to be done about the beginning course? Sometimes the unrest is vague, sometimes it is not recognized that lack of unity is the fundamental defect, but in few quarters is the present course regarded as satisfactory. Inquiries which I have received from all over the United States, from Rhode Island to New Mexico, and even from China, relative to the new course in Zoology in the University of Michigan, indicate how common is the desire for a new order.

Various proposals have been made remedying the defect. One plan offered by a botanist for the beginning course in botany is frankly to make the course practical, utilitarian. Since there may readily be a counterpart of this plan on the zoological side, it is worth considering. The author of this proposal does not recognize lack of unity as the thing to be overcome. He would, for example, study wheat—where it is grown, the kinds of soil, its uses, its markets, etc.; then potatoes—their soils, geography, industrial uses, diseases, and so on. However desirable a course in agriculture may be, little can be said for the above plan with regard to its unity. One plant may it is true, unify soils and markets after a fashion, but the gap between wheat and potatoes can hardly be bridged in the same arbitrary manner. This course is simply a type course of another kind, the types being no more closely connected than are the groups of organisms to which they belong.

One experienced teacher of zoology proposes that the history of the development of the biological sciences be employed. This teacher has detected the fundamental defect of the present course and his plan is avowedly an attempt to secure unity. His plan could be successful if the historical development of the science were steadily from the simple to the complex. If one could learn the history of the rise of a subject by the same steps as he learned the content of the subject, then history would be a unifying study. But were that done in zoology, one would study the development of the

chick before he learned of the existence of cells; and he would know of the parthnogenesis of the honey bee before he knew the existence of germ cells. Whereas, theoretically, simple things should be discovered before complex ones, many circumstances, such as the lack of microscopes, has prevented that order from being followed. Are we to forget that we now have microscopes, in order to let history unify our subject for us? History may explain a good many discrepancies, especially in earlier biology; and it may explain the emphasis now laid on certain kinds of investigations; but it does not unify anything. History unifies only subjects that are essentially historical in their nature, like political development, or philology. I do not mean that history is uninteresting or unimportant, for it is neither; but it unifies only the *history*, not the *content*, of biology.

Unity can be acquired only by arranging subjects, placing the simple first, and laying thereby a foundation for the more complex. Each subject should lead to another, and rest upon those that precede. Such unity a course based on the discussion of types can have only in small degree. Otherwise one teacher could not begin with Protozoa, another with Vertebrates; or another with Arthropoda which are followed by Protozoa, leaving the Vertebrates to the last. Did types insure unity we would not have that interesting chapter on "animals of uncertain affinities" squarely in the middle of the course. Nematodes do not lead naturally to the Bryozoa, nor do the Annelids obviously follow the Echinoderms. There is no obvious necessity for having the Mollusks precede the Arthropods.

But homology does lead to taxonomy, taxonomy and ecology to distribution, distribution in space to distribution in time. Cell division leads to cell aggregation, and reproduction to embryology. The connections stated are not merely obvious, they are necessary.

The study of topics entails certain difficulties, one of them being the larger amount of diverse material required in the laboratory. Some may think that this use of many different animals is confusing, rather than unifying. Our experience indicates that such is not the case. Using many animals to demonstrate the truth of the cell doctrine is not more confusing than the study of Profit and Loss in arithmetic by problems involving vinegar, woolen goods, automobiles, and ostrich feathers. What would you think of an arithmetic that employed vinegar for addition, division, profit and loss, compound interest, and cube root, before woolen goods were used to illustrate the same operations? Or what of a school system in which vinegar was studied from the same point of view? Those would be type studies, type arithmetics, type school systems.

In only one other science, so far as I am aware, do teachers as consistently use the type method as we have done; that is chemistry. Whether another method would do as well in that subject I am not qualified to say. Biology is, then, one of few sciences which have allowed their wealth of material to obscure their subject matter.

How do students react to the treatment I have described? Perhaps we have not been using the new method long enough to speak authoritatively, but some things seem to be observable. I have seldom heard students ask that question not infrequently heard, not only in our own laboratories but in those of other institutions, "How much of all this are we expected to remember?" Students now recognize for themselves that the things which they study are important, for they draw conclusions from them. They have been quicker than teachers to see the advantages of the new method. Verily, these things were hid from the wise and prudent, and were revealed unto babes.

The beginning course in zoology in the university, which embodies our general ideas of what that course should be, is organized as follows: The first exercise is an attempt to demonstrate the truth of the cell doctrine by the examination of tissues from very different sources, to show the essential and occasional features of cells, and some of the extreme ways in which they may be modified in certain situations. Then come a few of the simpler activities of cells and cellular organs (digestion, movement, excretion), followed by cell division. The aggregation of cells into masses, some simple, some complex because of differentiation and division of labor, naturally follows division. The study of differentiation early involved the differentiation into reproductive and sterile cells, and reproduction is next given attention. Breeding habits and embryology follow, almost as part of the same subject. Embryology furnishes the criterion of homology, upon which taxonomy rests. Taxonomy would naturally be followed by geographical distribution, since speciation plays so large a role in explaining distribution; but ecology is also necessary for distribution, and is introduced immediately after taxonomy. Zoogeography lays down some of the principles governing the distribution of animals in time, as illustrated in the exercise on Paleontology. Evolution is not studied as a separate exercise, since it permeates each of the last five exercises of the course, forming a suitable climax for a course on biological principles.

Perhaps you will ask how all this is to be done in high schools. My advice is "Don't." A course of this kind requires a logical mind which not all college students have, but which we hope to develop in them. The high school mind, if I am reliably informed, especially the freshmen high school mind, is essentially illogical. But for the Junior College, where that exists, I can see many advantages of the new course used in the university.

I have recently come to be perturbed by one question, How will the teacher who has had only one course in zoology, and that course based on principles, teach zoology? At first I was hopeful that such a course as ours would prevent such teachers, for in the second and third courses our students get the kind of zoology which, in a more elementary form, they will want to use in high school. But I am assured that graduates of the university with only the first course in preparation *will teach*. They will teach because principals and superintendents will allow them to do so. They will

do so even because some principals deliberately select untrained teachers in the expectation of training them in the way they should go, a more preposterous idea than which never got into any man's head. I wish you would tell me what such teachers will attempt to do.

THE DISTRIBUTION OF MAN, WITH SPECIAL REFERENCE TO THE CAUCASIAN RACE

PROFESSOR BERTRAM G. SMITH, MICHIGAN STATE NORMAL COLLEGE

Man is one of the most cosmopolitan of animals; his distribution is not entirely dependent upon adaptation to the physical environment, for to a large extent man makes his own environment. Nevertheless the combined artificial and natural environment does have a profound effect upon the evolution of a race, for even slight changes in environment, acting constantly, search the physical make-up of man with demands for readjustment, and exert a selective influence with the passage of time. Thus a hunting race may not thrive as an agricultural race, and an agricultural race may undergo rigid selection when it becomes a manufacturing race. When profound changes of environment occur, either through alterations of climate or a migration of the race itself, whole races may succumb and leave only their epitaphs as a lesson to be read by the archeologist. If we are to derive any biological lessons from the distribution of man, they must be sought by classifying the races of man and following the history of particular races through long periods of time. In the few minutes at my disposal it is manifestly impossible to deal with all the races of mankind, and it seems best to illustrate the principles of racial evolution through a study of the distribution of the various branches of the white race.

I. RACE, LANGUAGE AND NATIONALITY

In reading history most of us unconsciously confuse race, language and nationality, and the historian himself often falls into the same error. Race implies heredity; among anthropologists it is a name for a hereditary type, distinguished by the possession of certain constant physical and mental characteristics. But one race often imposes its government, its language and its customs upon another; these things cannot be used as criteria in defining races. In the United States we have representatives from almost every race on the globe, participating in the same government, speaking the same language, and wearing the same kind of clothes.

The fallacy of accepting comparative linguistics as a guide to phylogenetic classifications is nowhere better illustrated than in the case of the Aryan group of languages. During the nineteenth century it had been found that the people in various parts of Europe spoke related languages; it was evident that these languages were derived from a common source, and it

was thereupon assumed that the people who spoke them were related through descent from a common stock, the Aryan race. With the development of biological methods for differentiating races, it has been abundantly proved that various peoples of Aryan tongue are quite dissimilar, and comprise several distinct races. The Aryan tongue was doubtless once confined to an Aryan tribe, but later spread far beyond its original limits, both racial and geographical. On a smaller scale, the same principle applies to the Celtic language and culture, and many other examples might be cited.

Still more obvious is the tendency to confuse race and nationality. Few hesitate to think and to speak of the Germans as if they were a homogeneous people, racially distinct from the French and the English; yet Germany, France and England are each composite nations, with a strong racial element in common. "Modern anthropology has demonstrated that racial lines are not only absolutely independent of both national and linguistic groupings, but that in many cases these racial lines cut through them at sharp angles and correspond closely with the divisions of social cleavage The living peoples of Europe consist of layer upon layer of diverse racial elements in varying proportions. . . . Aboriginal populations from time immemorial have been again and again swamped under floods of newcomers and have disappeared for a time from historic view. In the course of centuries, however, these primitive elements have slowly reasserted their physical type and have gradually bred out their conquerors, so that the racial history of Europe has been in the past, and is today, a story of the repression and resurgence of ancient races" (Grant, 1918).

Race, language and nationality are three separate and distinct things which are only rarely co-extensive in a geographic sense. In Europe the nearest approach to a coincidence of these three elements is found in the Scandinavian nations.

II. THE METHODS OF ANTHROPOLOGY

The three great divergent types of mankind may be roughly classified as (1) the white or Caucasian, (2) the Negro and the Negroid, and (3) the Mongolian together with the Mongoloid. Confining our attention to the white type, we recognize three distinct races which today make up almost the entire population of Europe, but are not confined to it: the Nordic, the Alpine and the Mediterranean. It is our purpose to consider mainly those physical characteristics which are of value in distinguishing between these three European races. These are: the cephalic index, stature, and the color of the eyes, hair and skin.

In dealing with European populations the best method of determining race has been found to lie in a comparison of the proportions of the cranium. The quotient obtained by dividing the width (measured just above the ears) by the length is multiplied by one hundred and called the cephalic index. Skulls with a cephalic index of 75 or less are considered dolichocephalic or long skulls; those with an index of 80 or more are brachycephalic.

lic or broad skulls; intermediate indices, from 75 to 80, are mesocephalic or mesaticephalic. For the purpose of classifying European races it has been found advisable to include these intermediate indices with the dolichocephalic group. Normally, a long skull is associated with a long face, and a broad skull with a broad face.

Stature is composed of several elements which seem to be separately inherited; age and sex must be taken into consideration. Stature is susceptible to some environmental modification: exceedingly adverse economic conditions may prevent an individual from attaining the full measure of his growth, but it is always heredity that sets the limit.

The color of the eyes, whether blue, gray, green, hazel, brown or black, is a character more stable than hair color and skin color. In the following discussion we shall include under the term "blond" all the lighter shades of hair, such as red and light brown, and all complexions except those decidedly dark.

These five characters, cephalic index, stature, and color of the eyes, hair and skin, are sufficient to distinguish between the three great modern races of Europe. But the problem is complicated by the fact that in Europe as well as in America a vast amount of race crossing has taken place. It is not sufficient for the anthropologist to employ statistical methods; he must analyze his problem as a geneticist would do, and be familiar with the known laws of inheritance involved in race crossing. Moreover, if we wish to extend our study to other races, or to minor variations of the three great European races, we must consider a great number of physical characteristics not enumerated here.

III. THE RACES OF EUROPE

A. *Prehistoric Man in Europe.* The first undoubted fossil remains of man in western Europe are those of the Heidelberg race, which appeared in northern Germany early in the second interglacial period. The Heidelberg race represents man in the making, and probably ranks not far from the point of separation between man and the anthropoid apes. It is a generalized type which is now extinct, but seems to have been directly ancestral to its successor, the Neanderthal race.

The Neanderthal race existed in Europe during the third interglacial period, and is known from its fossils and implements of chipped stone. This race was characterized by low cranial capacity, dolichocephaly, protruding brows, with lateral as well as anterior prominences, retreating forehead and chin, shoulders broad and stooping, with the head and neck habitually thrust forward; the knee bent forward without the power of straightening the joint or of standing fully erect; the hands extremely large and without the delicate interplay between the thumb and fingers characteristic of modern man. It was widely distributed, but is now commonly said to be extinct. It seems very probable, however, that some of its germ-plasm is in existence at the present time, for certain of the characteristics of this

race have occasionally reappeared in recent or modern individuals. Quatrefages mentions a Danish gentleman of some political prominence, also a bishop, and lastly the Scotch hero Bruce, whose skulls were apparently of the Neanderthal type. In the "old black breed" of Scotland the overhanging brows and deep-set eyes are suggestive of this race. Living specimens of paleolithic man are found not infrequently on the west coast of Ireland; the proportions of the skull are in some cases quite clearly Neanderthal.

The Neanderthals were succeeded by a new and far higher race, the Cro-Magnons, who entered Europe from Asia by way of North Africa. This took place at the close of the fourth and last glaciation, about 25,000 years ago. The Cro-Magnons were of very modern aspect, taller than modern Europeans, and with a greater absolute cranial capacity. The skull was disharmonic in that the cranium was narrow and the face broad, which points to a probable hybrid origin. They were a race of hunters and their principal prey the reindeer, whose likeness they drew, or engraved, or sculptured in bas-relief on the walls of their caves. Their weapons were of flint and of carved bone. They persisted as a vigorous race for about 15,000 years, but declined in numbers and in stature as the climate became warmer. Skulls of the unmistakable Cro-Magnon type are to be found in small numbers among existing populations in central France, precisely in the district where fossil remains of this race were first discovered—a remarkable case of the persistence of a race in the same locality for 25,000 years.

The immediate successors of the Cro-Magnons were some inferior races of little importance. The Paleolithic or Old Stone Age was brought to a close and the Neolithic or Polished Stone Age ushered in by the appearance of the three great races which inhabited modern Europe, about 7000 or 8000 B. C.

B. *The Three Great Modern European Races.* The white or so-called Caucasian race is not homogeneous; it consists of at least three distinct types in addition to the types of minor importance already considered. These three great divisions are the Nordic, the Alpine and the Mediterranean races. Today these three races occupy respectively the northern, middle and southern parts of Europe, with the Nordic and Mediterranean races meeting in the west, at the apex of the great wedge-like area inhabited by the Alpines.

1. *The Mediterranean race.* Members of this race are short and slight of build, dolichocephalic, and dark of skin, hair and eyes. This race, while inferior in physique to both the Alpines and the Nordics, is historically inferior to none in the realm of intellectual achievement. To this race belongs the chief credit for the classic civilization of Europe, but it has played a relatively small part in the civilization of modern times.

The Mediterranean race entered Europe from southern Asia, where it is still widely distributed. Today it forms a substantial part of the population of the British Isles, southern France, Spain and Italy, and all the

Mediterranean coasts and islands, in some of which it exists in great purity. It forms the substratum of the population of Greece and of the eastern coasts of the Balkan peninsula; in central Europe it underlies the Alpine race.

2. *The Alpine race.* The members of this race are brachycephalic, with round skull and round face; they are of medium height and sturdy build. The color of the hair and eyes is typically very dark.

This race is of Asiatic origin and entered Europe during the Neolithic Age, at least 5000 B. C., when we find them established as lake dwellers in Switzerland. Later invasions of this race, about 3000 B. C. brought the bronze culture from Asia, and by virtue of the possession of superior weapons the Alpines soon spread over central Europe. In their final expansion to the northwest, the Alpines reached Denmark, Norway and Holland; a few reached the British Isles. Soon after this, about 1800 B. C. they were forced back by the Nordics. The present distribution of this race in western and central Europe is a substantial recession from its former limits, and has been almost everywhere conquered and subordinated by the Nordics; but it has mingled its blood with that of its conquerors and now appears to be increasing again at the expense of the master race.

The Alpine race forms today the great bulk of the population of central France. It forms the greater part of the population of southern Germany, but its rulers are or were until recently, mainly Nordics. In Austria the main bulk of the population is Alpine, but the hereditary aristocracy is mainly Nordic, except in the east where the ruling class, the Magyars, are of Alpine race. The inland population of the Balkan peninsula is mainly Alpine.

The Alpine race is a race of peasants—an agricultural and never a maritime race. The Alpines brought with them from Asia the art of domesticating animals, and a knowledge of the cereals; they brought the bronze culture and the art of making pottery. In western Asia the race is entitled to the honor of the first real civilization of which we have any record—the early civilization of the Tigris-Euphrates valley. In classic, mediaeval and modern times they have played an important part in European culture, possibly on account of their political subordination.

3. *The Nordic race* is everywhere characterized by great stature; long skull and long face; blue eyes; high, narrow and straight nose; and light-colored hair. It is almost always blond, but this blondness must be construed somewhat liberally to include some populations with the intermediate shades of skin, hair and eyes. For example, the Norman strain of the Nordic race is seldom extremely blond, and is often dark. The hair of the Nordics sometimes assumes a reddish tint, especially among the Danes. Brown hair and hazel eyes are characteristic of many English populations of Nordic descent.

Comparative great stature is one of the most distinctive characteristics of the Nordic race. The Nordic is taller than the Alpine, and the Alpine is

taller than the Mediterranean. Almost the tallest statures in the world are to be found among the pure Nordic populations of the Scottish and English borders, while the native British of pre-Nordic type are for the most part relatively short.

Of the three races which make up practically all of the modern European population, only the Nordic can claim to be indigenous; it has developed its physical characteristics and its civilization in North Europe. For the development of so marked a type there is required an area isolated and protected for long ages from the intrusion of other races. The Nordics first appear at the close of the Paleolithic along the Baltic; in the forests and plains of eastern Germany, Poland and western Russia the race gradually evolved. An important element in the isolation of this Nordic cradle is the fact that it has always tended to become overpopulated; thus the pressure of population has ever been away from it instead of toward it.

The race early spread into the Scandinavian peninsula, where it is now found in great purity. Southern Scandinavia became fit for human habitation on the retreat of the glaciers about 12,000 years ago and apparently was at once occupied by the Nordic race. Sweden today represents one of the few countries that have never been overwhelmed by foreign conquest, and in which there has been but a single racial type from the beginning. A favorable climate, and the absence of race crossing, are the principal factors which have contributed to the success of this early Nordic colony.

In the eastern part of their original range, in European Russia and in Finland, the Nordics have lost ground to the Alpines, who gradually infiltrated into the country while the Nordics were occupied with their southern invasions.

The Nordic area early spread far to the southeast of its original boundaries. This race is believed to have introduced the Sanskrit language into India; but the blood of the invaders was quickly absorbed by the dark Hindoo, and in the final event only their synthetic speech survived. The Nordics invaded Persia, but here, likewise, they were bred out by the races they conquered. In Greece, the Balkan peninsula and Asia Minor successive invasions of the Nordic people left little impress on the racial characteristics of the modern inhabitants of those regions.

As the result of successive Nordic invasions, throughout southern Europe, particularly in Italy and Spain, a Nordic nobility forms the old aristocratic and military class. The Nordic element in Italy has dwindled perceptibly since the Middle Ages. The Castilians of Spain were of Nordic race, but they have nearly disappeared.

About 1000 B. C. the Nordics crossed the Rhine into Gaul. In France the northern portion is mainly Nordic, but this racial element suffered heavily through the Revolution and Napoleon's wars.

The Nordics reached Britain about 800 B. C. The western vanguard of these invaders was composed mainly of a tribe called Celts, but the name has since been applied to a mixed population—Nordic, Alpine and Mediter-

anean—which spoke the language of the Celts. In England the Nordic race is still dominant, but is decreasing in competition with the aboriginal Mediterranean race.

The men of Nordic blood form today practically all the population of Scandinavian countries, also a majority of the population of the British Isles; they are almost pure in type in portions of Scotland and in eastern and southern England. The Nordic realm includes the northern third of France; all Holland; the northern part of Germany; the north of Poland and of Russia. Recent estimates show that there are about 90 millions of pure Nordic physical type in Europe, out of a total of 420 millions.

The Nordics are, wherever found, a race of soldiers, sailors, adventurers and explorers; also of rulers, organizers and aristocrats. They are possessed of a dominant energy and restless migratory impulse. Of the white race in general it has been said: "On whatever land the white man sets his foot, of that land he is master or there he finds his grave." But this is really true only of the Nordics.

Many authorities believe that the early Nordic race, or some part of it, was the original and only real Aryan race, which afterward imposed its synthetic speech on all the races now speaking the Aryan group of languages.

IV. THE EUROPEAN RACES IN AMERICA

The early explorers and colonists of the New World were almost wholly of Nordic stock. The Spanish conquerors were Nordics; but their Castilian blood was early mixed with that of the natives, and today this type is practically extinct in America.

The white population of Canada was from the beginning and is today, mainly Nordic. The early colonists of the United States were Nordics, but this racial element was greatly impaired by the Civil War, and in many parts of the south is decreasing in competition with the negro, with the advantage of climate in favor of the latter. In the north, recent immigration is overwhelmingly from Alpine and Mediterranean stocks. When in addition to these facts we consider the increase in the population of Asiatic origin, the outlook for the Nordic race in this country is not encouraging.

V. PRINCIPLES OF RACIAL EVOLUTION

There is abundant historical evidence that the physical characteristics here considered have been handed down by inheritance with little change within historic times. The development of a racial type must be very slow, and once established through a long process of isolation and separate evolution, these racial types are extremely stable and permanent. We have already noted the persistence of the Cro-Magnon race in the same locality for 25,000 years. The Neolithic populations of the lake dwellings in Switzerland and the extreme north of Italy, which flourished about 5000 B. C., are believed on historic grounds to be represented by the existing inhabitants of certain Alpine villages. A comparison of the scanty physical re-

main of these Neolithic lake dwellers with their representatives in the existing populations demonstrates that the skull shape has changed little or not at all during the last seven thousand years; it is the mesocephalic skull of the Alpines. The skulls of some native tribes of Egypt are almost identical in measurements, proportions and capacity with skulls found in their tombs dating back some six thousand years. The black skin, kinky hair, thick lips and retreating forehead of the typical negro are shown in some very ancient paintings.

In the present state of our knowledge it is idle to ask what is the ultimate cause of these racial differences. Concerning the origin of the variations which constitute racial characteristics we know practically nothing. But if we inquire, what preserves the mutants and thus enables new characteristics to persist, then we can answer with considerable assurance. The most powerful of selective influences is climate. The races that have survived unchanged are for the most part those which have enjoyed a continuance of the same environmental conditions. Climate determines the physical and to a large extent the mental qualities of an indigenous race, and change of climate tends toward readjustment or extermination. Thus the splendid Cro-Magnon race flourished in an invigorating climate, but decreased in stature and almost disappeared as the climate became warmer upon the retreat of the glaciers. The Nordic race exhibits the strength, hardihood and vigor we should expect of a race that has developed in a stimulating climate, where changes of temperature are frequent but the extremes are not so great as to discourage effort; its blondness could arise only in a region of abundant fogs and clouds. The Nordic race has suffered greatly from migration to climates where it could not thrive; almost all its southern conquests have ended disastrously for this race. In a warm climate with brilliant sunlight the energetic Nordic quickly loses his constitutional vigor, and the infertility of Nordic women in tropical and subtropical regions is a matter of frequent observation. On the other hand, the power of a thoroughly acclimated race to breed out its alien conquerors is very great.

Changes of occupation may exert an influence on racial evolution comparable to change of climate. The Nordics in England are apparently receding before the little Mediterranean brunette. The chief loss has been through wastage in war and through emigration, but the transformation of England from an agricultural to a manufacturing nation has been an extremely potent influence. In his natural environment, heavy work in the open air enables the Nordic to thrive, but the cramped factory and the crowded city quickly weed him out. The Mediterranean is much better adapted by nature for urban conditions.

Another factor of fundamental importance as affecting racial continuity is the matter of race crossing. We now know that as a general proposition hereditary characters, considered singly, are not lost by the crossing of races; this is the Mendelian contribution to anthropology. New combi-

nations arise from such crosses; these differ from the original racial combinations and are therefore said to be disharmonic. For example, in the Nordic race blondness is always associated with tall stature and blue eyes; but through crossing with the Mediterranean or the Alpine races, blue eyes may come to be associated with dark hair, and brown eyes with light hair. A tall brunette or a short blond may usually be regarded as of mixed ancestry. These new combinations give to modern populations a pleasing diversity which is pleasing to the eye. Just how numerous and important are the characters which are thus recombined we can only dimly imagine, but we can scarcely believe that all of these combinations are successful ones in a biologic sense. To put the matter in a crude form for the sake of illustration, it would be an unfortunate thing if one should inherit a Nordic appetite and a Mediterranean digestion, or the physique of a William the Conqueror with the philosophical temperament of a Diogenes. Out of the kaleidoscopic recombinations of racial characteristics we should expect to find abundant material for natural selection. Moreover, considering the number of known characters by which the races differ, and the fact that some of these characters are the product of several independent factors, we can readily see that only under the most rigid selection, environment or otherwise, can the purity of either race that entered in the cross ever be restored.

Since race crossing is seldom limited to a single mating, but is continuous throughout successive generations, the hybrid condition is generally maintained. Hence the importance of the law of dominance in race crossing. In eye color, brown is dominant to blue, and in hair color the darker shades are dominant. Color of the skin and stature, belong to a different category; the hybrid condition is a blend or something intermediate between the parental conditions. Since segregation into numerous grades may take place in subsequent generations, this result is usually attributed to multiplicity of factors. But regardless of this distinction, in respect to its most important characteristics the blond race is invariably the loser in mixtures with other races. In their migrations the Nordics have often left their women behind, so that they were compelled to mate with the women of the races they have conquered. With the advantages of both climate and the laws of heredity all in favor the vanquished race, it is not strange that the Nordic type has rapidly disappeared from the scene. The results of the spectacular military conquests of history have been far less permanent than the more insidious victories due to the race crossing.

There are abundant reasons for believing that the peculiarities which distinguish the white race, and particularly the Nordic race, are specializations of comparatively recent origin. For example, dark-colored eyes are almost universal among wild animals, and entirely so among man's nearest relatives, the primates. One race of man, and one only, specialized in light-colored eyes: the Nordic race of northern Europe. This same race also evolved light-colored hair, a character far less deeply rooted than eye-color, but typical of no other race. Concerning skin-color we must speak

with less assurance, but it is generally believed that the darkest-skinned races are the most primitive. Characteristics of recent origin are relatively unstable in inheritance, and when crossed with more primitive or generalized traits, tend to disappear. In other words, the more ancient physical traits are usually dominant. The result of the continued mixture of two races gives us a race reverting to the more primitive type. Probably the same laws holds for mental traits, for in racial mixtures the relative prepotencies of the various branches of mankind appear to be inversely proportional to their social value.

The rarity of pure races or biotypes, and the consequences of cross-breeding, are at once the hope and the despair of the eugenicist. On the one hand we see with Tennyson "reversion ever dragging evolution in the mud;" on the other, we see a saving grace in the mixture of two stocks not too distantly related. Cross-breeding corrects undue specialization and the accumulation of hereditary defects; it strengthens those fundamental qualities that are time-tried and fire-tested; while it may be fatal to some of the finer qualities of a superior strain, on the other hand it may save that strain from absolute extinction. But in the opinion of the writer there is no good to be expected from the union of races as diverse as the Caucasian and the Negro, or the Caucasian and the Mongolian. Metcalf (1916) believes that there is destined to be but one race of mankind, a highly hybrid race to which all the present races that are able to persist shall make their contribution. This result he regards as inevitable. But there are strong forces, climatic, hereditary and social, which make for segregation of biotypes. What the outcome shall be depends in large measure on the intelligent interest which man himself takes in his future—it is within his power to mold it.

REFERENCES

- Grant, Madison.* 1918. The passing of the great race; or the racial basis of European history. Second edition. Charles Scribner's Sons.
- Haddon, Alfred C.* 1898. The study of man. G. P. Putnam's Sons.
- Huntington, Ellsworth.* 1918. Climate and the evolution of civilization. Chapter V of "The evolution of the earth and its inhabitants," by R. S. Lull and others. Yale University Press.
- Metcalf, Maynard M.* 1916. Evolution and man. Journal of Heredity, August.
- Osborn, Henry Fairfield.* 1915. Men of the old stone age. Charles Scribner's Sons.
- deQuatrefages, A.* 1905. The human species. D. Appleton and Co.
- Ripley, W. Z.* 1899. The races of Europe. Kegan Paul, Trench, Trubner and Co., London.

GEOGRAPHY AND GEOLOGY CONFERENCE

GEOGRAPHY THEN AND NOW

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Those of us who have seen more than three decades of service in the schools have witnessed some remarkable changes in public education. It is true that the aims of education are the same now as they were thirty years or thirty centuries ago; it is true that both the human organism and the educative process show little change since the dawn of recorded history. But every age and every civilization must be left free to shape its own system of education to the needs of its own time. This involves the selection of subject matter and methods of instruction, as well as innumerable other considerations.

I am not one of those who regard the past with a dash of good-humored contempt. I hold that our dead selves really may have been noble stepping stones, and that any period of the past may have served its purpose as effectively as does our own day and generation. Pride, not pity or complacency, should characterize our attitude toward the beginnings and development of human progress. Puny, indeed, seems Stephenson's "Rocket" beside the powerful locomotive that hauls the heavy limited train seventy miles an hour, but the former made the latter possible. The little "Savannah" which crossed the ocean in 1833 held within it the promise of a "Lusitania" or "Leviathan," and our educational crudities of the '80's contained the germs of a wiser pedagogic theory and practice.

It is not thirty-five years since I made my first attempt at teaching school in a little country school house (white, not red) on one of the numerous prairies of Illinois. There were no "standard schools" at that time. Although the building in which I taught was far better than most in that section of the country there was evidenced little thought for the physical comfort and well being of the children, while the educational equipment was pitifully inadequate, no maps, no globe, very little blackboard, no dictionary, no reference books or supplementary reading. I can well remember the text books of those far-off days. There were the McGuffey Readers, not the revised edition which made its appearance a few years later, but the old, original, dyed-in-the-wool readers familiar to the contemporaries of Lincoln. Learning the alphabet was an indispensable prerequisite to learning to read in those primitive times, and only when the alphabet was mastered was the childish sojourner along the flowery path of knowledge introduced to such wildly-interesting reading material as, "We go up," "Do we go up?" "We do go up." Well, we have traveled a long, long way from

that method of teaching reading, at any rate. And then there was Ray's Arithmetic with its mathematical puzzles and monstrosities, its alligation medial and its permutations, its averaging of accounts, its progressions, cube root, and other absurdities. The big boys began at the beginning of the book each fall and by the time spring work recalled them to the farm they reached the same place they had worked up to several terms before. And we had Barnes' History with its compendious chronologies, its trivialities, its disproportionate treatment of wars, its almost total disregard of social and industrial progress.

And then there was Colton's Geography. Well, it really didn't make much difference what text we had. They were all alike. Each map was accompanied by a host of questions and a large part of the work of the geography class was a game of locational hide and seek. The maps were of poor quality, the illustrations crude, the subject matter poorly selected and arranged. But worse, far worse, were the methods of teaching geography then almost universally employed. Little was attempted or accomplished beyond the memorizing of bare, isolated facts. What has since been characterized as "place" geography or "sailor" geography constituted a large part of the work done. We named capes, bays, seas, mountain peaks, rivers, islands, straits, isthmuses, capitals, bounded countries and states, and located cities. No one seemed to suspect that this subject, geography, had any vital connection with life, or that it contained the finest sort of material for the training of the reasoning and imaginative faculties. It was a dreary teacher to dreary children. It was a study not of things but of the names of things, a study not of the wondrous phenomena of nature on every hand but of dead, meaningless symbols. It was dull, dry, mechanical, loathsome.

But there was light ahead. Francis W. Parker was one of the first to break away from the old traditional methods of teaching geography and point out the wonderful possibilities in the subject. He unsparingly denounced the dead and meaningless methods of teaching geography then prevalent, and with contagious enthusiasm he showed the better way. Others advanced the cause until a more rational method has been attained.

Now, I am going to make bold to say that of all the subjects taught in the public schools from the kindergarten to the high school the richest in content, the most comprehensive in range, the fullest of cultural value, the most closely related to life, the most informing and the most inspiring, and therefore one of the most practical, is geography. And it isn't one of the three R's either. I feel confident that geography contains more of the elements of a liberal education than any other subject. It is this fact, perhaps, that makes geography one of the most difficult subjects to teach well. It requires an amount of preparation of subject matter that is simply stupendous. The teacher of geography should have an acquaintance with the fields of geology, ethnology, physics, chemistry, meteorology, astronomy, economics, history, biology, agriculture. We do not hear so much about correlation as we did ten years ago, but the fact remains that correlation is

one of the most significant of educational principles. And in geography we have the rarest opportunity for making our work a whole. In every industrial enterprise there is made a systematic effort to eliminate waste. Correlation is the key to secure this result in the school room. Too many teachers regard the teaching process as a filling of water-tight compartments of the mind. When they are teaching arithmetic they teach arithmetic only. Consequently all sorts of errors of speech pass unnoticed. These will receive due, and ineffective, attention in the language of the class. Slovenly attitudes are not corrected. These can be rectified in the physical training period. Carelessly written work is accepted without comment. Neatness can be taught in the composition exercise. Mispronunciations and misspellings are overlooked. They will be dealt with in the regular reading and spelling lessons. Teachers who teach in this way forget the process of habit formation of which they learned in their training school days. Even worse is the situation in departmental and high schools, where different teachers teach different subjects. Every teacher should teach English, every teacher should correct physical habits, every teacher should teach good manners. All this is trite enough, but it needs repeating; infinitely more it needs *doing*. We lack team work and the children suffer thereby. What a lack of co-ordination when one teacher is oblivious of spelling and another seems crankily insistent and persistent regarding it; when one teacher requires all written work to show care and another pays no attention to form or neatness; when one teacher permits conduct that another sternly reproves.

The skilled teacher of geography is aware that education is all of a piece, and that geography can be made to touch the child's life at innumerable points. And this, in my judgment, is the greatest advance made in the teaching of geography in the past thirty years. What a travesty, nay, what a sin to teach about rivers and valleys, winds and rainfall, climate and vegetation, transportation and manufactures, from books alone when the real things are all about. Teachers have learned to relate the child's daily life to the whole world. The morning meal with its cereal, its bread and butter and fruit, the clothing worn, the knife in the pocket, the skates hanging on the arm, the playthings, all through the medium of geography reach out to the ends of the earth. The child has thus come into possession of all lands and civilizations, and geography becomes full of meaning and brimming over with human interest.

Another great advance in geography instruction in recent years is the method of approach by means of the problem. The great value of this method is that it secures the active co-operation of the group. It is in a high sense a socialized exercise. The word "democracy" has been much upon our lips recently. It is encouraging to feel that we have been unnecessarily and unwisely autocratic in our school management, and that to our talk about democracy we are going to add some measure of its practice. Although it is not a panacea for all geographical difficulties, the prob-

lem method lends itself effectively to inquiry into a surprisingly large amount of geographical knowledge. The problem method simply assumes the truth of that old adage, "There's a reason for everything under the sun," and believing many of these reasons are worth ascertaining and understanding proceeds to seek them out. This is a logical and educative procedure and when wisely directed stimulates interest, an indispensable element in the acquisition of knowledge and the development of power.

The problem method has some interesting by-products. In the first place it requires adequate preparation on the part of the teacher, a desideratum of the highest importance. The old time lesson assignment of giving so many paragraphs in advance is thrown into the discard. That was usually a quantitative assignment with little necessary knowledge of the subject matter on the part of the teacher, a sort of off-hand guess as to how much the pupil could prepare in a given length of time. In assigning a problem and indicating the means of reaching a solution the teacher must of necessity traverse the ground over which the pupil must pass and so has a perception of the pupil's difficulties never revealed by assignment in the mass. An indispensable condition of good teaching is that the teacher shall have time to prepare her lessons well and that she shall take time to prepare them well.

Another by-product of the problem method is the training which it affords children in the use of books. When we consider how much children use books in their school work, it is surprising how little they know about using them. And this is our fault, not theirs. We have assumed that they know how to use books and have not taken the trouble to teach them. I do not know which is the more hopeless, the teacher who assumes too much as to her pupils or the one who assumes too little, but at least it isn't wise to assume that because pupils are familiar with books they can use them effectively. In developing a problem in geography it is necessary to consult different books, to find topics, to consult indexes and tables of contents, to select from a given page or paragraph the material which is applicable to the problem under consideration, to reject irrelevant data, to collect and systematize all matter bearing upon the subject. This develops powers of selection and discrimination and a sense of orderly procedure. Consistent effort in this direction must result in making pupils much more skillful in the use of reference material, a valuable acquisition for anyone.

In recent years teachers of geography and teachers of teachers of geography have come into a fuller appreciation of the map as an agent in geography instruction. We are not swinging back to the excessive amount of map exercises of thirty years ago. We have learned to use the map more sensibly. Were I restricted to a choice between map and text in teaching geography I should unhesitatingly choose the former. If you are teaching your children to read maps intelligently what a wealth of ideas is open to them in compact and easily accessible form. We usually give seven or eight weeks to the study of South America in our schools. I believe a good

teacher with a good map and no text could teach more of real worth about what Colonel Parker called "that magnificently-sculptured rock, South America," in ten days than is usually accomplished in the eight weeks. It would require careful planning for each lesson, but the results would amply justify the effort. I never step into a school room where a map of Asia hangs upon the wall without letting my eyes traverse the peninsula of India. What a panorama passes before the mind's eye! That great triangle with its base in the Himalayas, its apex in the Indian Ocean. Nineteen hundred miles from Peshawar to Comorin, fifteen hundred miles from Kheer to Calcutta. Extending within eight degrees of the Equator to eleven degrees beyond the Tropic of Cancer. The great southward slope of the Himalayas, the great plain of the north, the valleys of the Ganges and the Indus, the Dekkan, the great sea of Arabia stretching away to the westward, over which is borne the commerce of western Europe, the Bay of Bengal extending away toward the kingdom of the rising sun and the enchanting lands of the far east. The land of Clive and Hastings, of Havelock and Campbell. But I cannot stop to tell you what the map of India calls to mind; its romance, its poetry, its art, its splendor, its squalor, its ignorance and poverty, its teeming millions, its famed temples and cities, Delhi and Madras, Simla and Darjiling, Lahore and Jodhpur. What a land and what a people! To paraphrase Hamlet, "The map's the thing," to unlock these treasures most easily and most impressively.

Teachers of geography, we are entering upon a new era in regard to this subject. The whole world has been studying geography for nearly five years as never before in its history. We are going to continue the study of geography out of school and this is going to make it easier to teach it in school. By a judicious selection of material, by a wisely constructed course of study, by sane methods of teaching, we can put and keep geography in its deserved place in the school program, and the lives of our children will thereby be enriched, their powers developed, and their capacity for service to society enlarged.

GEOGRAPHY AS A PRACTICAL SUBJECT

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If a geographer is merely a teacher of geography (and that, I fear, is the current understanding today), then this paper may be ambiguous, but if, by a geographer, we mean a person who gains his livelihood by using geography or teaching geography, then this paper may command some attention and present a definiteness. When your chairmen asked me to give a

paper on "Geography as a Practical Subject," he said in substance, "I hope you will put new life and hope in the lame and the halt of our profession." This, then, is to be a "Pep" paper—a sort of rally speech—non-informational. I am glad, indeed, for such an opportunity.

Perhaps a better and more appropriate title for this paper would be "Extra-Academic Geography" because I am going to take you out of the school-room and not attempt to find another job for you, like the one you left.

I don't think I have ever had so many of my former teachers (those under whom I was once a pupil, and note, that for fear of rebuke, I say pupil, and not student) in an audience of listeners where I was wielding the stick. So look out! Long have I waited to get you where I want you. Not only am I going to tell you what I think of you and your teaching, but I shall expect to be excused from all errors of subject matter, thought, and composition on account of errors in previous training. However, I shall let you down easy, because I am now one of you, and then too, I don't want to go to jail.

To begin, we have been cowards. Perhaps most school teachers are. They are afraid to proclaim their rights for fear of losing their jobs. Mayor Couzens of Detroit knows this, for he told us schoolmen of Detroit so, only a few weeks ago. In substance he said, "You men are the best educated men of the city, you are fairly equally distributed geographically over the city, you are the leaders in your community, you mold the ideals of your community, and you should be the civic leaders in your community. With these weapons you can gain anything you want, if you will go after it. You should be limiting my salary and quoting your own." So with geographers, we, especially, are cowards. We've stood by and, without a struggle, let many occupations strip us of our well earned material, and use a new name for it to promote progressive movements.

I say we have been stripped of our legitimate practical business, until we have nothing left but school teaching for a livelihood. Geography has lost many of its practical phases by agriculture, by engineering, by geology, by economics, by transportation, by promoters of natural resources, by shipping boards, by traffic and tariff companies, and probably others.

From this you may get the idea that I think geography is a hodgepodge (and a political one, at that) but I inform you of your misjudgment. It is not the case, but I do think that the geographer ought to have a place in the world, and, especially, in this reconstruction period, outside of the school.

These people who have branched off are practical men. They are not cowards. I would amend our definition of geography from "influence of earth upon past life" to "influence of earth upon past and present life, and its probable influence upon future life." Of course, I do not believe in absolute geography control, but I do believe that we should have confidence enough in geographic conditions to do some forecasting. We should be

able to point out possibilities of development. Geographers make no forecasts. Their work is historical, that is, it deals with the past and is therefore dead. We know the results and then look for the conditions. I didn't see one prognostication of results of battles or battle lines made by geographers, based upon geographical conditions. Yet most battles of all wars can be satisfactorily explained for geographical reasons, after the results are known.

However, as mournful as this may seem, we have made some progress. The war has done much for practical geography. Mr. O. F. Baker of the Department of Agriculture, carries on extensive investigations in agricultural geography, and Mr. Hoover and staff have become the greatest agricultural geographers of all time, while the American Geographical Society is preparing maps and a world atlas more comprehensive than we've ever known. America has emerged from being a provincial nation to one of great world power and not only that, but this war has changed us from a debtor to a creditor nation.

Already our powerful financial institutions are reaching out and establishing banks in all Latin America, China, Japan, Russia, India, and the East Indies. The National City Bank of New York has no less than twelve foreign branches in the West Indies and South America, and the International Banking Corporation has fifteen or more branches in the Orient.

Our engineers have been called and will further be called to build up the railroads, to open the mines, to develop the oil fields of Russia, of Siberia, of China, and of South America. A few years ago we were a debtor nation; today we are one of the greatest creditor nations in the world. We are the only nation with a large surplus of free capital for investment abroad. Our participation in the war was so short that we emerged with practically unimpaired resources, while the nations of Europe are burdened with a very heavy weight of debt. South America, China, and Siberia must look to us increasingly for financial, industrial, and engineering development. American statesmen, financiers, manufacturers and exporters are going to need a far more intimate knowledge of all countries and all peoples than they have ever had before. They will need to know more geography and principally the practical side of it. We must train men to find places for investment instead of finding capital for investment. See further what the war has done for us. We may say, geographers have just been found. The government found it was short in men trained in geography. Heads of departments in Washington vied with one another, as to which could get the most and best trained men in geography. Our colleges have hardly offered a course in geography this past year—every teacher who could be released has been doing war work.

I wrote letters to heads of Departments of Geography of nearly all the colleges and universities, leading in this subject, to ask what extra academic work their faculty members were doing. I shall give you a part of Professor Salisbury's answer which is only typical of all:

"I have this to say that essentially all the geographers I know have been working outside their school circles during the war. For example, Professor Tower, of this University, has been in Washington more than a year as one of the large factors in the Shipping Board. He is now in Paris at the Peace Conference.

"Professor Barrows was in Washington five months and they tried their best to keep him permanently in the State Department. He was also urged to go to the Peace Conference as one of the experts.

"Professor V. C. Finch, of the University of Wisconsin, has been in Washington for more than a year, part of the time with the Shipping Board and part of the time with the Agricultural Department in expert work.

"Professor W. H. Haas, of Northwestern University, has been for many months with the U. S. Shipping Board.

"Professor Goode, of this University, has just been appealed to to prepare a book on the Geographical Development of St. Paul and Minneapolis. This sort of thing could be multiplied almost indefinitely, as long as the list of geographers holds out."

In addition to these people, A. P. Brigham, Professor of Geology and Geography, Colgate University, worked on the United States Shipping Board, and on the War Trade Board we find Herbert Bassett, Professor of Geography, Normal School, Macomb, Ill.; N. A. Bengston, Professor of Geography and Conservation, University of Nebraska; C. J. Posey, Asst. Professor of Geography, University of Minnesota; A. L. Pugh, High School of Commerce, New York City; J. Russell Smith, Professor of Industry, University of Pennsylvania; R. H. Whitbeck, Professor of Geography, University of Wisconsin; Professor Johnson of Columbia and Professor Martin of Wisconsin were doing geographical work in France. And in the Division of Military Intelligence were Professor Martin and Professor Williams and Mr. Davis of the University of Wisconsin, Professor Huntington of Yale, Professor S. W. Cushing of Salem State Normal, Professor Rich of the University of Illinois, Herbert E. Gregory, National Research associate in Geography, Yale University; F. E. Williams, was Captain in the United States Army, Assistant Professor of Geography, University of Wisconsin; Professor W. M. Davis of Harvard, was with the National Research Council.

Nor will this demand for trained geographers cease when the war is over. The Division of Military Intelligence and the War College must go on collecting detailed information about the mineral resources, food resources, the transportation facilities, the man power, and financial strength of every nation in the world. The War College will continue to collect maps and to make maps which shall place at the nation's disposal detailed information about every part of the world. Our agricultural department will go, we hope, giving us such excellent publications as the recently published "Geography of World Agriculture," by Messrs. Finch and Baker, the "Atlas of American Agriculture," and studies such as Zapoléon's "Ge-

ography of Wheat Prices." The Carnegie Institution and other learned bodies will go on, we hope, preparing atlases such as the "Atlas of Historical Geography of the United States," which the Carnegie Institution is now working upon. We ought to have atlases of the mineral resources of the world from the U. S. Geological Survey; of forest resources of the world from the Bureau of Forestry; we need the best of railway maps, of road maps, and of waterway maps, and soil maps.

Now, what practical extra-academic work legitimately belongs to the geographer? Much of agriculture is only applied geography. A study of water power, water supply, the plotting of villages, the directing of trade routes including farm roads, the conservation of many natural resources, soil mapping, the adaption of commercial plants to climate, adaption of industry to community, many problems of capital and labor, the relation of diseases to climate and soil, all belong, at least in part, to the geographer. Possibly there should be a Department of Geography in the Geological and Biological Survey at Lansing and in the Department of Interior at Washington.

Further, every industrial center wishes to add new industries and become larger. To accomplish this, every Board of Commerce should engage a live geographer to make a survey of their town as to power, transportation, labor, capital, topography, climate, and raw material, to see what industries are best suited to it.

Every National Missionary Society should have a trained geographer. We geographers have gained much more knowledge from missionaries than we have imparted to them. As far as I know, this past month is the first time a Missionary Society has ever employed a geographer. Large Industrial companies, especially those doing business outside the U. S., should have a trained geographer on their staff, e. g., large tea companies, tariff makers and others. I'll grant that part of this work properly belongs to the Department of Business Administration, but they can't complete a job without us, or even start one right, so let us demand our share.

I understand Henry Ford has hired an expert to find a number of cities best adapted to making his new \$250 car. A study of power, labor, transportation, health, climate, and raw material will determine it. Isn't this the work of a geographer? Is a geographer doing it? No. Why not? Just because we have not advertised that we can do such work, and that such work should be ours. Can we do the work? Are we prepared for it? I'll let you answer.

One more example where the geographer has lost his job. Nearly every large manufacturing plant employs a mailing manager. Even plants as small as the Continental Motors Co. and the Hudson Motor Co. employ as many as 15 clerks each in this department. Their chief work consists in stamping mail and starting it in the right direction, but they do have an opportunity to become very valuable employees.

One day while talking with one such manager of one of Detroit's automobile factories, the office manager came to him and said, in substance, "We have decided to circularize Brazil. Do you suppose we can find someone in Detroit who can talk Brazilian, or isn't that the name of their language? Can we get anything printed in their language? Of course, it can't be done on a typewriter." The mailing man seemed as helpless as the office manager until I worked my way into the conversation, and said, "There is no true Brazilian language but you would accomplish most by using Portuguese." Finally I said, "What you need is a geographer on your force of employees." He replied, "I didn't know geographers could do anything but teach school." I said, "Well, I guess you're right, but they ought to do more, and could do more, if you would give them a trial." He said, "Come out, we'll give you a job, any time." In passing, I may say this mailing clerk is drawing more money than any teacher of geography in the city of Detroit. There are doubtless one hundred such positions in Detroit, five hundred in New Orleans, a thousand in New York, and five hundred on the Pacific Coast. Why not fill these positions with geographers? If time would permit, I could go on and develop each of the ten practical phases of geography of which we have been robbed when we were looking on,—asleep.

I know, recent years have seen a great reaction from old fashioned book education, and the demand is for young people who shall be efficient in business. In many ways this reaction was necessary. Yet it must not go so far that young people will not care for general intelligence.

On the other hand, the country will suffer, if it fails to provide an adequate return to brain workers, to intelligent and educated people who have spent time and money in acquiring knowledge, and fitting themselves to be better citizens. But educated people must do their share in making themselves fit for active participation in life. Education must do something more than develop their critical and analytic faculties.

Many men have developed through book study an exceedingly cultivated power of observation. They are refined, penetrating students of life, can discourse charmingly and give judgements on any subject. But they can't do anything. The power of initiative was left out of their education. That kind of training is not fitted to modern life.

Let us plan some courses for this practical work in our colleges and universities that do give initiative, and fill some of these many positions that the present reconstruction period will demand.

I suggest that we geographers ally ourselves with men of big business, help charities, take a live interest in good government, and advertise our cities, as geographers.

Let us identify ourselves with the progressive clubs of our cities. And remember that merely joining a club is not identifying ourselves with it. To get anywhere we must become a personality. There is always a joy in putting something new and something big across.

If your general bearing and conduct bespeak indifference toward pushing such practical geography, rouse yourself. Don't put it off with a promise to change your attitude next year. Because you won't. You are getting old and more firmly fixed in your ways while the world is growing younger toward geography. Geography is being rejuvenated.

The hustler is the only man who will carve out a future for geography that is worth while. The laggard is going to find the good things with the lid screwed down and the screwdriver in the hands of someone who got there first. Join the hustler class today.

I would suggest that this Club appoint a Committee (probably of three members) to get in touch with the State Geologist or the State Legislature to see if we can get some public official recognition. I would suggest that this committee get in touch with progressive Boards of Commerce, large distributors, and such other organizations for the purpose of promoting practical geography and places for practical geographers. See that geography has a place on general programs. See that men, interested in geography, fill general offices. See that business demands geography. Then there will be no trouble to secure a sufficient number of pupils in Normal School and College to elect Geography.

ART CONFERENCE

THE EXHIBIT OF THE DRAWING SECTION AT ANN ARBOR

An interesting exhibit of public school art work was shown in the main gallery of Alumni Memorial Hall. It was made up almost entirely of designs made by children in various degrees of advancement, in the grade and high schools of the State. It was collected by a committee of the drawing section of the Schoolmasters' Club, under the chairmanship of Miss Agnes Van Buren, a teacher of design and drawing in the Grand Rapids schools. Flint, Kalamazoo, Detroit, Grand Rapids and other cities were represented.

Many interesting pieces, showing great variety of subject, lettering and color scheme were shown; color studies built up from colored paper, which proves a most satisfactory medium for decorative work; decorative designs, both naturalistic and abstract in character, represented by means of stencils, in exactly the same way as a decorator would use in carrying out a decorative scheme in a room or hall; designs made for printing from wood blocks. The wood blocks were cut by the students and then printed, on paper, linen, crash, and other textiles. Color and design study, as applied to costumes, were also found in the exhibit; a great variety of designs which could be used for wallpaper, burlaps, gowns, curtains; in other words,—a splendid demonstration of the value of design in life.

The exhibition showed that the children in the public schools may develop, in an elementary way, and grasp one of the most valuable activities which lies at the base of industry,—all those kinds of production which have to do with stuffs for both clothing and furnishing the home, and indeed every attempt to make the necessary objects of life more interesting. There are occasionally persons who look upon art as a fad, not remembering that this country has, indirectly, paid large sums to those foreign institutions that trained the designers who make the imported object so valuable. No country more than France has grasped the value of public instruction in these subjects, as a means for giving her the markets of the world. Her example and success point the way for the United States and demonstrate the necessity of schools of design for the training of young men and women to help further production and commerce, as well as provide a field of employment for artistic ability.

EDUCATIONAL PSYCHOLOGY CONFERENCE

THE CONTENT OF PSYCHOLOGICAL COURSES IN TEACHER- TRAINING CURRICULA

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Among the many problems of reconstruction that the world is facing and for which correct solutions are being earnestly sought, is that of the readjustment of educational theory and practice to the new world order. The day of strong centralized autocracy is past, and the day of social self-determination and self-direction is at hand. What we would have appear in government and society at large must first be introduced into the schools. No longer should we follow blindly the paths marked out by custom—"New occasions teach new duties"—nor should the new be accepted unconditionally simply because it is new and promises a better order. Both new and old must be carefully scrutinized and analyzed to discover their respective elements, and then with an aim somewhat clearly seen, discrimination must be exercised in accepting from each what will be helpful, and neglecting that which has been outgrown or has been proved useless. This age is becoming more and more scientific in its methods. Each object that challenges the attention is being analyzed and properly valued. Thinking is becoming the method and practice of the common man. Principles of action are being sought which will guide man in his behavior. Out of the free discussions of opinions truth will be discovered. This should be the attitude of the course-maker in educational practice. No longer is it sufficient to accept and endorse curricula from the standpoint of tradition and long accustomed practice. Every subject that is a candidate for a place in a modern curriculum must meet the challenge of social needs, and must give valid reasons why it should be given a place on the program. That is, cause must be shown that in the doing of its particular work and living its particular life, society would be thereby richer and stronger if such subject were accepted and adopted, than it would if such subject were omitted. This is the straight and narrow way by which any subject may enter the school curricula. The challenge each subject must meet is: What have you to offer that will promote the welfare and effectiveness of social life which cannot be supplied more economically by some other subject. This must be the test of the value of courses in psychology—and especially in Teacher-Training curricula. What have these courses to offer which would make the person who has taken them—as contrasted with a person who has not taken them—a *superior* teacher.

Let me approach this problem in the inverse order to that suggested in the statement of the subject of this paper:

First, A consideration of the child to be educated.

Second, The school activities through which the formal education is carried on.

Third, The necessity for the proper and sufficient training of teachers.

Fourth, What may psychological courses have to offer that will guide and help the teacher whose duty it is to create and administer the situations that will call forth the kind of reactions desired.

First. Modern education in its best form has *rediscovered* the child. In him is the center of all educational doctrine and practice. In the ultimate analysis of education there are three fundamental problems: The *child* and his needs, the *environment situations* that stimulate him, and his *recitations* or *responses*. Each of these problems has its component factors, and each may be analyzed to its finest detail—the discussion of which we must necessarily omit in this paper. However, we now very consciously recognize that education is not merely and primarily concerned with the mental development of the child. Indeed, we are coming to know that the development of a healthy boy—with vital organs functioning properly, a well organized nervous system, controlled muscles, and properly adjusted sense organs—lies at the very foundation of mental and moral life. If the physical conditions are satisfactory there is confidence that all other necessary things will be added. We also know that development does not proceed uniformly and regularly, but that there are stages in physical, mental, and moral growth. Mental growth results from experiencing *realities*, and moral growth takes place through social contacts.

Second. With a more complete knowledge of child nature, we also know that this nature can not develop in a vacuum; it must have the stimulus of social life, and this nature grows for better or worse, because of the reactions induced by the stimuli. The self can not be considered apart from other selves—they are inseparably interrelated. Hence *self*-activity implies *social*-activity. Education demands a constantly expanding group-consciousness, under the influence of which the various activities of the child are carried on. His play, games, and work must be socialized. Recognition must also be made of the different occupational abilities. Because of variations in original nature there will be variations in response to situations—in kind, and degree of quickness, and force. This suggests a different treatment of children in regard to sex and age, in both physical and mental training. A better knowledge of child nature has brought about the recasting and reorganizing of the school system. The so called six-six plan is an attempt to shape the school program is conformity with the needs of the pre-adolescent and the adolescent boys and girls. From the standpoint of the child's stage of development and his interests, the means and material of education are

evaluated and the sequence of the different school subjects is determined. An attempt has also been made to analyze these subjects for the purpose of discovering the particular mental problems that are involved in each, so as to guide the approach and direct the attack. This attempt has succeeded to a considerable degree, and neither the teacher nor pupil is left to grope his way blindly.

Third. With the better knowledge of the child's needs and the new demands in education, it is insistent that those who are to direct and supervise the formal educational career of the child shall be trained in a scientific manner, and as thoroughly as time and human knowledge will permit. Regarding the child as a potential physical, mental, and moral being, whose development depends upon stimulation and response, the training—on the professional side—should be in the basal facts of *biology*, *physiology* and *hygiene*, *psychology*, and *sociology*, together with method and expression in their practice, in addition to the necessary knowledge of the academic subjects which he is to teach.

Thus the work of the teacher may become scientific, and some assurance can be given as to the outcome of the process.

Fourth. Now to the fourth and main part of our discussion. Granting that the professional training of the teacher should include a working knowledge of the fundamental facts of biology, hygiene, psychology, and sociology, what should be the content of psychological courses in teacher-training curricula? Keeping in mind the preliminary discussion regarding: (1) Child nature, (2) The new educational program, (3) The necessity for teacher-training, as well as the challenge that is given to each subject of the curriculum, we shall give psychology a welcome entrance and a large place in the program of school subjects, for the reason that the teacher must know certain facts which psychology teaches in order to minister to the needs of the child—and without which, the teacher is working in the dark, without intelligent plan or purpose—and worse. The following group of facts should form the content of this subject—together with its vocabulary of terms:

1. The *accepted facts of mind and consciousness*, and the *interrelations of mental processes and physical processes*. The explanation will depend upon the biological-behavioristic view of psychology, that consciousness is a concomitant of cortical processes, and that it can be revealed to the outsider through motor responses only. Mind is a series of successive states of consciousness that intimately blend in their onward flow. Two views of psychology have been entertained: the *faculty*, and the *functional*. The former leading to the doctrine of formal discipline, the latter to the doctrine of the unity of consciousness. This view of mind will also make necessary a good understanding of the nervous system—its composition, structure, and function; the meaning of *stimulus*, *nervous impulse*, *synapse*; the three lev-

els of the nervous system, from the evolutionary point of view, which make possible the various orders of reflexes and the conscious movements.

2. *The classification of movements.* As *mental processes are revealed* through behavior-movements—of certain types, one should know the different kinds and their nervous bases: the automatic—those concerned with the vital organs, circulation, digestion, respiration, secretion; the reflexes of the first and the second level; the instincts; the conscious, or purposive; and the latter through repetition developing into habit—and that the forming of habits is the opening and fixing of pathways in the nervous system for the nervous impulse, by a modification of the synapses—a physical process.

3. *The nature and function of attention.* That all conscious states have focal elements, and others that are more or less marginal; that the efficient person is one whose marginal elements are many and various, and who can freely focalize and hold there any one of these elements until his purpose is accomplished; that attention as a state of consciousness is *free* or *forced* according to the interest or lack of interest of the individual; that the largest and best educational returns are under free attention given through interest.

4. *All mental life has its beginnings with sensory experiences.* Through the stimulation of sense organs by objects, their qualities are known (sensation), and by fusing the conscious qualities, the objects themselves are known (perception.) Through sense-perception one comes to know the material universe. As this fundamental knowledge is made possible by the sense organs properly functioning, any defect in the sense organs will be accompanied by partial or total mental defects—as color blindness, tone deafness, and so forth. It follows that there should be a good knowledge of the structure and function of the sense organs, together with their proper use and care.

5. *The nature, kinds, function, and value of imagination.* As the image is the mental reproduction, in whole or part, of some sensory experience, the accuracy and clearness of the former will depend upon the completeness and definiteness of the sense-perception. By means of the image one may set aside time and space and become a citizen of any age or land. But memory must go to one's own past for its material, and out of this personal experience—build his world of mental life.

6. *The forms, function, and training of memory.* The distinguishing difference between imagination and memory is this, that while both depend upon mental images, imagination is unlimited as to time and space—past or future, near or far—and depends upon ability to retain and recall the image, while memory is limited to what has taken place within one's own personal experience. In connection with memory, the laws of association—(resemblance)—and the laws of learning are considered; also the types of memory associations, and the close relation of memory and habit in logical and rote learning.

7. *The nature of ideas—and the process of forming and enriching concepts.* The idea introduces one into the world of meanings, and the concept helps to systematize and organize the components of that world. Through sensory experiences we become acquainted with the world of sense; by means of imagination and memory we may re-instate with some degree of satisfaction, the mental ages of the qualities of the sense-objects, and of the objects themselves; but it is only when we appreciate the *function* or *use* is the *meaning* or *idea*. By fusing the common qualities of objects we gain a *generalized meaning*, which is the *concept*. From this time the growth of mental life depends upon the enrichment of concepts by forming new associations of meanings of things. Thus far there is clearly pointed out the method of procedure in helping the child to understand the world; First, the object; Second, the image; Third, the idea of object and image; Fourth, the concept; and Last, a symbol (word or other character), that will make the concept portable. The frequent mistake made in teaching is to begin with the symbol as a tool for getting further information instead of using it as a carrier of ideas.

8. *The thinking process, involving the concept, judgment, and reasoning.* Thinking is the process of forming conscious mental relations. It analyzes, compares, classifies, and organizes the mental stuff gained through sense-perception, imagination, memory, and conception. There must be material of some sort to work upon or there can be no thinking. The order of the process is: (1) The challenge of the situation, (2) The element of doubt, (3) Selection and rejection through comparison and discrimination, (4) The inference, and (5) The proof. This process involves conception of meanings and the forming of judgments. The movement of thought may be from particular cases to general principles, (induction), or, from generalizations to specific applications, (deduction), or, as is the usual method, the combination of both. In our complex social life it is not possible to foresee the various emergencies that will demand one's reactions. Reflexes, instincts, and habits will not be adequate; judgment and thinking must guide the responses. Training for power to think clearly, accurately, and quickly is one of the large and significant aims of education. This power can be developed only through practice in meeting and solving real *problems of actual living experiences*. The problem of learning how to study is involved here. Good studying is good *thinking*.

9. *Original nature, as it is revealed through instincts and interests.* Educational forces must seize upon and modify those tendencies and traits already set up and organized at birth—cultivating some for fuller and finer expression, eliminating others. Out of the matrix of these potentialities must be developed the skillful and effective reactions. Interests are those subjective conditions that accompany attention, by which one is made conscious of the relation of objects to himself. Being closely related to instincts which are natural motor responses, they lie at the very foundation of the educative process. Interests stimulate effort and self-activity.

10. *The proper understanding of play, drudgery, and work, as educational activities.* All instincts and capacities tend to reveal themselves in play; hence one must know and appreciate the educational value of play, the different theories of the origin of play, and the development of the different types of play. One must know the mental processes that are involved in the various kinds of plays and games—sense-perception, imagination, memory, judgment, reasoning—all diffused with the warm glow of interest and appreciation.

11. *The nature of emotion, its function and control.* Along with the instinctive and purposive responses there may be as concomitants the feelings of pleasure or annoyance. The former tends to cause a repetition of the act, the latter tends to inhibit it. This principle is important in the choice of activities and in the development of skill. The emotional life is so closely related to bodily conditions, that its control and direction is largely a matter of the control of physical reactions. These complex and intense feelings are also closely related to the intellectual processes, and constitute in large measure the springs of human conduct.

12. *Volition, in the expression of the self through desire and choice.* The mystery of the will is explained by noting that any or all of the components of consciousness, when directed toward the accomplishment of some purpose, is the *will*, and that the so-called *will* may be strengthened or weakened by the modification of those conscious elements—perception, imagination, memory, and the others. The training of the will is made possible by making clear and meaningful the primary elements of consciousness. A strong willed person is one who perceives clearly, imagines vividly, remembers accurately, thinks logically, feels warmly, and does effectively. The wise teacher will endeavor to make these responses habitual through practice, and thus help to make the *will* of the child strong and true.

13. *The co-ordination of motor activities, and the learning of control in acquiring skill in movements.* The simple reflexes, in the nature of random movements, lie at the foundation of controlled motor activities. Out of the on-going random movements in any particular situation, *one* is made that proves successful this successful movement is accompanied by a feeling of satisfaction that guarantees its repetition. Frequent and many repetitions refine the act and develop habit. Habit leads to skill. While the learning process is going on, there are stages of little or no advancement. These are the plateaus, on which levels new co-ordinations are being formed, and former acquisitions are being more fully incorporated into the process. These are the periods when the pupil needs especial encouragement.

14. *The nature and effect of fatigue.* With a large and continuous expenditure of nervous energy, in mental or physical exercise, the nerve centers, and their component neurones, may become exhausted—and the power to continue the exercise grows weaker. No harm results if the neurones easily recover their energy with reasonably frequent periods of rest. But

if these periods, or sleep, do not bring the usual degree of vigor, then the condition is called *fatigue*, whether it comes from mental or physical exercise—and serious results may follow if proper treatment in the form of prolonged rest be not given. The teacher should know the causes, symptoms, and treatment of fatigue—and the periods of the day, and the age, when the boy and the girl, are most susceptible to fatigue. This knowledge will assist the teacher in arranging the daily program as to sequence of study activities and rest periods. It will help to explain many of the irritating conditions of school life, and thus point the way for wise and just discipline.

15. *The problem of individual differences.* The child begins life with his own personal physical equipment, in the nature of a specially organized nervous system. His particular native traits and qualities differentiate him from every other person. Environment seizes upon these natural traits and changes them by intensifying, reducing, or eliminating them. Common treatment of similar traits in different individuals tend to increase these differences rather than diminish them. The differences between individuals extend to all the physical, mental, and moral qualities—singly and collectively. A proper recognition must be made of this fact, and a suitable adjustment of the educational program must be made; yet the special qualities of each normal child are not so widely different from those of other normal children, that he can not join with the others in mutual co-operation. Indeed, his very differences are elements of strength in the social whole.

16. *Psychological tests, measurements of achievement.* That the mental status of the child may be determined more or less accurately, standards of ability and achievement must be discovered and adopted. Past usage, tradition, or opinion are not now accepted as satisfactory standards. Psychological tests have been formulated, and these have been proved valuable in determining rank in intelligence and occupational fitness. Such progress has been made in this field during the past two years, and with such surprising results, that we may already clearly see the effect these tests will have in the work of education. This is a field of investigation that the coming teacher must cultivate, and it offers large returns in the way of anticipating the needs of the child and providing the proper means for developing his individual powers for satisfying service.

As to the amount of time to be given to the work outlined, and as to the distribution into courses, is another problem. If the students have had good elementary courses in biology, and physiology in its relation to hygiene, in the high school—and such courses should be provided by all high schools—less time need be taken for the essential aspects of psychology. The length of time given to teacher-training is also a large factor in the problem. When the courses for the training of teachers are extended to four years beyond the high school, two years of that time—or 300 hour-periods—may profitably be taken for psychology and related aspects—as peda-

gogy, tests, and measurements. When the courses are for *two* years beyond the high school, the problem of time becomes more serious. Due consideration must be given to the various academic subjects, together with the professional methods of teaching them, followed by some actual experience in the training school—and all in two years. This leaves too limited time for the subject under discussion; yet under the conditions of the two-year courses, with their full programs, it is the opinion of the writer, that 175 hour-periods should be prescribed for psychology and related subjects, for the effective presentation and assimilation of the work of the outline previously sketched.

To summarize our discussion of the content of psychological courses in teacher-training curricula: That the prospective teacher of children, in order to know the many-sidedness of child nature with which the teacher will have to deal; the various situations that may be employed to stimulate and call forth the child's responses; and the different methods for guiding and controlling the child's reactions, must have definite knowledge of, and experience with, the following basal facts of psychology:

1. A good working knowledge of elementary biology, psychology, and hygiene—obtained in high school, or later.
2. The accepted facts concerning the nature of mind and consciousness, and the inter-relations of physical and mental processes;—including the structure and function of the nervous system.
3. A knowledge of motor expression, and the classification of the body movements.
4. The nature, forms, and function of attention.
5. The facts concerned with the sense organs, their mode of stimulation, their common defects, and their hygiene,—together with their concomitant conscious qualities and products.
6. The nature, kinds, function, and value of imagination.
7. The forms, function, and training of memory,—together with the laws of learning and association.
8. The nature of ideas and concepts, and their use in forming judgments in the process of reasoning. Training in thinking will proceed in parallel with good methods of study.
9. The expressions of original nature through instincts and interests, involving the principles of apperception—that the activities of life are the continual reconstruction of past experiences.
10. An understanding of play, its meaning, and its relation to those forms of activity characterized as drudgery, and work.
11. The forms and expressions of emotion, and methods of control.
12. Purposive self-expression, or volition, through development of desire and choice. That the training of the will is determined by changes made in the elements of consciousness.

13. The co-ordinations of motor activities, and the acquisition of control.

14. The nature and effect of fatigue, and its attendant conditions and products.

15. The recognition of individual differences, and methods of treatment.

16. The nature of psychological tests and practice in giving them, together with a knowledge of the different scales as measures of achievement.

17. Some knowledge of the principles of sociology that the education of the child may be recognized as a social process, working through socialized material, in a social environment.

The foregoing principles must constitute the equipment of the teacher.

LIBRARY CONFERENCE

At the High School Librarians' Conference a discussion was held as to the importance of fixing the status of the librarian in the school. From statistics, compiled by Miss Poray of Northeastern High School, Detroit, it was shown that the library, which serves all departments of the school, is not equipped in proportion to any one of them, nor is the salary of the librarian at all what it should be.

The following resolution, proposed by Miss Florence Hopkins of Detroit Central High School, was then unanimously adopted by the Conference:

RESOLUTION

In view of the rapid growth of the library, and its function in modern education, the Library Section of the Michigan Schoolmasters' Club in session at Ann Arbor, April 4th, 1919, earnestly requests the consideration, on the part of educational directors, of the points mentioned below, which have already received the sanction of other bodies as there indicated.

NATIONAL COUNCIL OF ENGLISH TEACHERS: Chicago, 1918.

First: Good service from libraries is indispensable to the best educational work.

Second: The wise direction of a library requires scholarship executive ability, tact, and other high-grade qualifications, together with special training for the effective direction of cultural reading, choice of books, and teaching of reference principles.

Third: Because much latent power is being recognized in the library, and is awaiting development, it is believed that so valuable a factor in education should be accredited a dignity worthy of the requisite qualifications; and that, in schools and educational systems, the director of the library should be recognized as a department head, who shall be enabled to undertake progressive work, be granted necessary assistants, and be compensated in status and salary equally with the supervisors of other departments. From recently adopted requirements of the NORTH CENTRAL ASSOCIATION OF ACREDITED SECONDARY SCHOOLS.

For every one thousand students in daily attendance a full-time trained assistant librarian is needed.

In large high schools of 2000 to 3000 daily attendance, a second assistant should be appointed, and a library clerk or page or student pages employed.

A minimum annual appropriation per student should be determined for books, pictures, magazines and newspapers. For books alone a minimum of 50c a student is needed. Not less than \$40.00 a year is needed in even small high schools for magazines.

A minimum of three recitation periods per year should be given in each English course to graded instruction in the use of books and libraries.

The salary of a high school librarian should be adequate to obtain a person with the qualifications set forth in this report. It should not be lower than that of the English teacher, but it may be necessary to pay a higher salary when there is an over-supply of English teachers and an under-supply of librarians.

In high schools having heads of departments the librarian should be made head of the library department with status equal to that of heads of other departments.

SYNOPSIS OF BUSINESS MEETING

HELD IN UNIVERSITY HALL, APRIL 4, 1919

1. The meeting was called to order by President E. O. March.
 2. The minutes of the last annual meeting were considered read as published in the proceedings of the club.
 3. The report of Secretary-Treasurer was read by the Secretary-Treasurer.
 4. The report of the Auditing Committee was read and accepted.
 5. The report of Committee on Resolutions was read and adopted.
 6. The report of the committee on the death of State Superintendent of Public Instruction, The Hon. Fred L. Keeler, was read by Principal E. L. Miller and accepted by a rising vote.
 7. The report of the committee on affiliation with the State Teachers' Association was made by Principal E. L. Miller. No recommendations were made or action taken on account of the knowledge of the proposed changes in the By-laws of the Club.
 8. The report of the committee on the revision of the By-laws was read by Prof. J. B. Edmonson and adopted.
- On motion of Mr. B. A. Finney the committee on affiliation was continued. The report of the nominating committee was read and accepted, and the Secretary was instructed to cast an unanimous ballot for the persons therein named. The Secretary cast the ballots and the officers were declared elected.

Upon motion the meeting was declared adjourned.

LOUIS P. JOCELYN, *Secretary*.

FINANCIAL REPORT OF THE SECRETARY-TREASURER, 1918-1919

RECEIPTS

1918				
Balance as	per last report,	Commercial department.....	\$	133.45
Balance as	per last report,	Savings department.....		26.28
March 20.	Deposited dues	.....		83.10
" 27.	" "	.....		69.65
" 28.	" "	.....		516.50
" 29.	" "	.....		55.00
" 29.	" "	.....		178.35
April 23.	" "	.....		16.00
June 19.	" "	.....		36.00
" 28.	" "	.....		3.00
July 19.	" "	.....		3.00
" 19.	"	refund from U. of M. on Supt. Wirt's Lecture.....		68.25
Oct. 24.	"	dues		1.00
" 25.	"	cost of Advertisement.....		5.00

SYNOPSIS OF BUSINESS MEETING

75

1919			
March 1.	"	cash, Sale of Journals to Detroit Library.....	3.00
" 15.	"	cash, Advertisements	14.00
" 15.	"	dues	31.00
" 26.	"	cash, Sale of Journals	70.00
" 26.	"	dues	56.00
" 29.	"	interest	1.59

Total Credits.....\$1,370.17

Receipts for year, \$1,210.44.

1918

DISBURSEMENTS

March 28.	Check No. 432	Supt. Wm. Wirt, Lecture.....	\$ 117.00
" 29.	" 433	Prof. G. M. Whipple, Lectures.....	75.00
April 2.	" 434	L. P. Jocelyn, 6 mo. salary to April 1.....	100.00
" 3.	" 435	L. P. Jocelyn, paid doorkeepers.....	18.80
" 6.	" 436	Ann Arbor Press, printing programs, etc.....	114.00
" 13.	" 437	L. M. Hazen, Commercial Conference.....	5.65
" 13.	" 438	Dunbar and Boyce, Phys. and Chem. Conference..	8.00
" 15.	" 439	H. J. Abbott, P. M. Stamps.....	6.00
" 16.	" 440	Nellie Breathwaite, Clerk at Annual Meeting.....	4.75
" 20.	" 441	Prof. F. S. Breed, Com. on Supervised Study...	21.60
May 2.	" 442	Prof. F. R. Gorton, Phys. and Chem. Conference..	1.00
" 2.	" 443	Mary Harden, History Conference.....	4.40
" 8.	" 444	S. W. Millard, Badges, Receipts, etc.....	23.25
" 21.	" 445	C. M. Elliott, Ed. Psyc. Conference.....	1.62
June 28.	" 446	H. J. Abbott, P. M., Stamps.....	3.50
July 13.	" 447	Pres. H. M. Crooks, dues overpaid returned.....	2.00
" 13.	" 448	Prof. A. S. Whitney, short term Institute.....	7.45
Aug. 30.	" 449	E. L. Jocelyn, Clerk Annual Meeting.....	5.65
Sept. 6.	" 450	Office Expense for the year.....	79.85
Oct. 1.	" 451	L. P. Jocelyn, 6 mo. salary to Oct. 1.....	100.00
" 10.	" 452	Prof. G. L. Jackson, Com. on Supervised Study...	17.93
" 25.	" 453	Ann Arbor Press, Printing Journal.....	367.02
Dec. 4.	" 454	H. J. Abbott, P. M., Stamps for Journal.....	15.00
" 5.	" 455	H. J. Abbott, P. M., Stamps for Journal.....	10.00
" 14.	" 456	Am. Express Co., delivery of Journals.....	6.96
" 21.	" 457	Office work on Journal	9.30
1919			
Feb. 1.	" 458	Prof. F. S. Breed, Com. on Supervised Study.....	7.00
March 1.	" 459	H. J. Abbott, P. M., Stamps.....	3.00
" 15.	" 460	H. J. Abbott, P. M., 1c stamps for program.....	35.00
" 20.	" 461	H. J. Abbott, P. M., 1c stamps for program.....	5.00

Total Disbursements.....\$1,175.73

In Savings Department..... 26.28

In Savings Department, Interest 1.59

Balance in Com'l. Department 166.57

Balance in Com'l. Dept. \$166.57

" " Savings " 22.87

Total Balance.....\$194.44

\$1,370.17

REPORT OF THE AUDITING COMMITTEE

Your auditing committee begs to report that they have examined the accounts and vouchers of the Secretary-Treasurer of the Scholmasters' Club and have found the same to be correct and accurate.

A. G. HALL,
B. D. STOWELL,

REPORT OF COMMITTEE ON RESOLUTIONS

1. The Michigan Scholmasters' Club hereby declares its profound belief in education as the most effectual bulwark against the menace of anarchy and Bolshevism. We urge upon the people of the State of Michigan the absolute necessity of providing not only elementary education for all our people but also secondary education. The high school should be a universal institution in a democracy, in order to prevent the growth of a permanent proletariat.

2. The primary business of the schools is the making of worthy citizens. To this end we urge the reorganization of courses in history and other social studies and such requirements in connection therewith as will put the young citizen in touch with the currents of local, national, and world affairs. Such studies should not be postponed to the college, nor entirely to the senior high school. The years of the junior high school are unquestionably strategic years for the offering of fundamental courses along this line.

3. We hereby express a sense of pride in the wise and courageous leadership of President Wilson at the Peace Conference and in his efforts to bring about a lasting peace. We believe that every consideration of right and expediency demands that we support the plan for a league of nations. To do otherwise would be treachery to those who gave themselves to the cause of the Allies, believing this to be a war to end war; it would lend point and example to those elements of society now dominant in Eastern Europe and threatening everywhere who believe that the western nations have, with lying lips and hypocritical purpose, indulged in talk of justice, equality, and brotherhood merely to keep the masses contented until such time as would permit the re-establishment of the old order of secret diplomacy and balance of power; and again, as we believe, it would expose us to the certainty of another and more terrible war within a generation.

We therefore demand the ratification by the Senate of the United States of the Constitution of the League of Nations either in its present form or with such amendments as may be agreed upon. We respectfully call upon our senators, Hon. Charles E. Townsend and Hon. Truman H. Newberry, to use their influence to this end. The president and secretary of the Michigan Scholmasters' Club are hereby instructed to transmit copies of this resolution to President Wilson and to Senators Townsend and Newberry.

4. We rejoice in the passage by the Michigan Legislature of the James bill providing compulsory continuation schools in all school districts with 5000 or more population. By the terms of this most progressive measure all minors under 18 years of age not in day schools and not high school graduates must attend continuation schools eight hours a week, receiving instruction supplemental to their employment and including English, mathematics, citizenship, hygiene, etc. We respectfully ask Governor Sleeper to give his approval to this bill and the president and secretary of the Schoolmasters' Club are hereby instructed to forward a copy of this resolution to his Excellency.

5. We express our hearty satisfaction at the tendency now manifest on every hand to increase salaries of teachers, principals and superintendents and to put such salaries on a basis commensurate with the dignity and importance of our profession. As a correlative of this movement we urge all teachers to more thorough and continuous preparation for their work by study, travel and research.

6. Again we urge upon the Legislature of Michigan the pressing need of a model training school for teachers in connection with the University of Michigan. Our sister state universities are already equipped with such schools and Michigan must not be allowed to lag behind. The president and secretary of the Schoolmasters' Club are hereby instructed to transmit copies of this resolution to the Speaker of the House of Representatives and to the President of the Senate of the Legislature of Michigan now in session.

7. We are opposed to the principle of state-wide uniformity of text-books as tending to destroy local independence and initiative and to stifle educational progress. We heartily favor a state-wide compulsory free textbook law, requiring every school district to furnish text-books for the use of all pupils, thus making our schools free in fact as well as in name. The president and secretary of the Schoolmasters' Club are instructed to forward copies of this resolution to the Speaker of the House of Representatives and to the President of the Senate of the Michigan Legislature.

Respectfully submitted,

L. L. FORSYTHE,

E. C. WARRINER,

Committee on Resolutions.

Ann Arbor, April 4, 1919.

Report of special committee on resolutions upon the death of Hon. Fred L. Keeler, State Superintendent of Public Instruction:

The death of the Hon. Fred L. Keeler is an irreparable loss to education. His great natural ability, his splendid training, his early experience as a teacher, his knowledge of men, the unflinching kindness of his temper,

his tireless energy, his inveterate optimism, and his stainless probity, made of him an ideal head of the organization of the state.

In affectionate testimony of these great qualities it is hereby ordered that this tribute to his memory be spread upon the records of this organization and a copy suitably engraved be sent to his family.

E. L. MILLER.

PROPOSED AMENDMENTS TO THE BY-LAWS OF THE SCHOOLMASTERS' CLUB

BY PROFESSOR J. B. EDMONSON, UNIVERSITY OF MICHIGAN

Amend by striking out the reference to the nomination, election, term, powers and duties of the Secretary-Treasurer of the Club as given in Articles I, V, VIII, in Sections *c* and *d* of Article IX, and in Article X.

Amend by striking out the reference to the membership, powers and duties of the Executive Committee as given in Section *b* and *e* of Article IX, Article X, and Article XI.

Amend by the addition of a Section to be a part of Article IX and to read:

The Executive Committee shall be composed of the President and Vice-President of the Club, and three other members of whom one shall be elected each year for a term of three years, except at the first election when three members shall be elected, one for one year and one for two years and one for three years. The Executive Committee shall fix the time of the annual meeting, appoint and remove at pleasure the Secretary-Treasurer of the Association, fix his compensation and define his duties. The Executive Committee shall manage the affairs of the Club between its annual meeting, allow all bills, advise and assist the President in planning the general and section programs, fill vacancies in offices, and provide for the publication of such papers, addresses, and proceedings of the Club as it shall deem advisable. Meetings of the Committee may be called by the President at his discretion or upon the request of three members, and at least one meeting shall be held at a time other than the regular annual meeting of the Club. Three members of the Executive Committee shall constitute a quorum for the transaction of business.

ARTICLES OF ASSOCIATION AND BY-LAWS OF THE MICHIGAN SCHOOLMASTERS' CLUB

ARTICLE I—*Name*

The association shall be known as the Michigan Scholmasters' Club.

ARTICLE II—*Place of Office*

The office of the Club shall be located in the city of Ann Arbor.

ARTICLE III—*Object*

The object of the club is to further the common interests of the schools, colleges and university of the state.

BY-LAWS

ARTICLE I—*Time and Pluce of Meeting*

The club shall hold an annual meeting in the city of Ann Arbor. The time of meeting shall be determined by the Executive Committee.

The general meetings of the club shall be held on Thursday and Friday mornings, and the conferences of the club may be held at any time during the same week except on Thursday and Friday mornings.

ARTICLE II—*Membership*

Any person actively engaged in any branch of educational work may become a member of the club upon payment of the annual or life membership dues. A person ceases to be a member of the club when his annual dues remain unpaid one month after the last annual meeting.

ARTICLE III—*Dues*

The annual dues of the club shall be one dollar; life membership ten dollars. All life membership dues shall constitute an endowment fund and shall be placed at interest.

ARTICLE IV—*Officers*

The officers of the club shall be a President, Vice-President, Secretary-Treasurer and an Executive Committee.

ARTICLE V—*Election of Officers*

On the first day of the general meeting the president shall appoint a committee composed of three members from the general session and one each from the different conferences, to present candidates for all officers of the club, including the chairmen and secretaries of the different conferences. Each committeeman representing his conference shall present the names of candidates nominated for office by his particular conference, and in case no such nominations are made *he* shall make the nominations.

The committee as a whole shall nominate persons for the positions of President, and Vice-President, of the club, and one member of the Executive Committee, and it shall receive the nominations made by each conference, or by its committeeman, and shall be sole judge of the qualifications of each nominee.

No person shall be elected to any office who is not a member of the club, or whose dues for the coming year are not paid.

ARTICLE VI—*Time of Election of Officers*

The time of election of officers of the Club, except the Secretary-Treasurer, shall be on the morning of the last day of the general meeting.

ARTICLE VII—*Method of Election*

Unless otherwise ordered the election of said officers shall be by ballot.

ARTICLE VIII—*Tenure of Officers*

The general officers of the Club except the Secretary-Treasurer and members of the Executive Committee, shall hold office for one year; those of the conferences, except the Secretary-Treasurer, for not more than two years; and all officers shall hold office until their successors qualify.

ARTICLE IX—*Duties of Officers*

(a) *President*

It shall be the duty of the President to preside at the annual meetings and at the meetings of the Executive Committee. He shall be responsible for the program of the general sessions of the club, and shall perform such other duties as generally pertain to the office of President.

(b) *Vice-President*

It shall be the duty of the Vice-President in the absence of the President to perform all the functions pertaining to the President. He is a member of the Executive Committee.

(c) *Executive Committee*

The Executive Committee shall be composed of the President and Vice-President of the club, and three other members of whom one shall be elected each year for a term of three years, except at the first election when three members shall be elected, one for one year, one for two years, and one for three years. The Executive Committee shall fix the time of the annual meeting, appoint and remove at pleasure the Secretary-Treasurer of the Club, fix his compensation, and define his duties. The Executive Committee shall manage the affairs of the club between its annual meetings, allow all bills, advise and assist the President in planning the general and section programs, fill vacancies in offices, and provide for the publication of such papers, addresses, and proceedings of the club as it shall deem advisable. Meetings of the committee may be called by the President at his

discretion, or upon the request of three members, and at least one meeting shall be held at a time other than at the regular annual meeting of the Club. Three members of the Executive Committee shall constitute a quorum for the transaction of business.

ARTICLE X—*Conferences of the Club*

All conferences shall be under the general management of the Club. Their Chairman shall be chosen every year and no person may act as Chairman of his particular conference for more than two years in succession. Their Secretary may be elected for a period of years.

No person shall be elected to any office in the conference who is not a member of the club or who is in arrears in dues. (This clause does not restrain an official Chairman from appointing any person as Acting Chairman at any particular session.)

ARTICLE XI—*Auditing Committee*

The President shall appoint each year two members of the Club to examine the accounts of the Club and to report the condition of the same at the annual meeting.

ARTICLE XII

These By-Laws may be amended by a majority of the members present at any annual meeting upon twenty-four hours notice being given.

REPORT OF THE NOMINATING COMMITTEE

Your nominating committee begs leave to submit the following report:
For President, President Chas. C. McKenny, Michigan State Normal College.

For Vice-President, Principal Jesse B. Davis, Grand Rapids.

For the officers of the various conferences, those elected by the Conferences and confirmed by the Club.

For members of the Executive Committee:

To serve one year, Professor A. G. Hall, University of Michigan.

To serve for two years, Professor C. W. Greene, Albion College.

To serve for three years, Miss Jessie S. Gregg, Central High School, Kalamazoo.

J. W. SEXTON,
Chairman of Committee.

OFFICERS OF THE CLUB FOR 1920

President—Charles C. McKenny, State Normal College.

Vice-President—Jesse B. Davis, Central High School, Grand Rapids.

Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

Executive Committee—C. C. McKenny, J. B. Davis, A. G. Hall, C. W. Greene, Jessie S. Gregg.

Classical Conference—Chairman, A. H. Harrop, Albion College; Vice-Chairman, Flora I. Mackenzie, Battle Creek; Secretary, Clara J. Allison, State Normal College.

Modern Language Conference—Chairman, Lily Lindquist, Detroit; Secretary A G Canfield, University

English Conference—Chairman, Carrie E. Britten, Jackson; Secretary, Leona M Belser, Highland Park.

History Conference—Chairman, Mary Ann Gilligan, Central Normal; Secretary, Mary Harden, Grand Rapids.

Physics and Chemistry Conference—Chairman, B. W. Peet, State Normal College; Vice-Chairman, J. E. Fox, Western Normal; Secretary, D. L. Rich, University.

Mathematical Conference—Chairman, Sadie M. Alley, Northwestern High School, Detroit; Secretary, Mary L. Welton, Ann Arbor.

Biological Conference—Chairman, Grace Ellis, Grand Rapids; Secretary, Helen King, Saginaw.

Commercial Conference—Chairman, H. E. Ten Eyck, Western High School, Bay City; Secretary, Genevieve Cross, H. S. of Commerce, Detroit; Vice-Chairman, W. N. Glass, Northwestern, Detoit.

Geography and Geology Conference—Chairman, B. A. Barnes, Detroit; Secretary, Genevieve Clark, Belleville.

Art Conference—Chairman, Agnes Van Buren, Grand Rapids; Secretary, Ada L. Whitney, Detroit.

Grade Principals Conference—Chairman. W. J. Frye, Northern High School, Detroit;

Music Conference—Chairman, Mr. Carter, Ann Arbor.

Manual Training Conference—Chairman, G. E. Myers, University; Secretary, E. A. Bowen, Western Normal.

Educational Psychology—Chairman, E. C. Rowe, Mt. Pleasant; Secretary, J. F. Thomas, Detroit.

Home Economics Conference—Chairman, Mary F. Baldwin, Grand Rapids; Secretary, Alice M. Cimmer, Battle Creek.

Library Conference—Chairman, Edith A. King, Jackson; Secretary, Ellen Linton, Cass Tech., Detroit.

PROGRAM OF GENERAL SESSIONS

Central Standard Time Thursday Morning, April 3

Joint Session of the Schoolmasters' Club and Short-Term Institute.

9:30 o'clock

Natural Science Building

President—Superintendent E. O. Marsh, Jackson.

Vice—President—Miss Sadie M. Alley, Detroit.

Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

1. Short Business Meeting.
2. 10:00 o'clock. Lecture: Social Changes Affecting Secondary Education,
Dr. Henry Suzzallo, President University of Washington.
3. 11:00 o'clock. Lecture: How the Psychologist Measures Intelligence, (Illustrated with stereopticon),
Professor Guy M. Whipple, Acting Director of Research,
Carnegie Institute of Technology, Pittsburgh, Pa.

Thursday Afternoon, April 3

4:00 o'clock

Barbour Gymnasium

Gymnastic Drill by University Girls.

MICHIGAN FEDERATION OF TEACHERS' CLUBS

4:15 o'clock

Room B-2, High School

Chairman—Principal E. L. Miller, Detroit.

Secretary—Miss Lila E. Fyan, Detroit.

General Business of the Presidents of the Clubs.

MICHIGAN INTERSCHOLASTIC ATHLETIC ASSOCIATION

4:30 o'clock

Room B-8, High School

Chairman—Principal L. L. Forsythe, Ann Arbor.

Secretary—Mr. B. J. Rivett, Detroit, Northwestern High School.

1. General Discussion of Interscholastic Athletics.
2. Business Meeting.

Thursday Evening, April 3

8:00 o'clock

Auditorium, High School.

Chairman—E. O. Marsh, Jackson.

Secretary—L. P. Jocelyn, Ann Arbor.

Symposium: By-products of Increase in Teachers' Salaries.

1. Better Standards of Teachers and Teaching,
President Chas. McKenny, Michigan State Normal College.
2. Better Professional Ethics,
Superintendent, W. W. Warner, Saginaw.
3. The Child's Interest in the Teacher's Salary,
Mrs. Edith V. Alvord, Member of the Board of Education,
Highland Park.

Thursday Evening, April 3

8:00 o'clock
University Hall

The Much-Woo'd Maiden, English Version of the Casina of Plautus:
Latin Play in English, Classical Club, University of Michigan.

Friday Morning, April 4

(Admission by badge)

9:00 o'clock
University Hall

Literary Program of General Session.

1. Continuing War-Time Activities:—
 - (a) J. V. McNally, State Director School Thrift and War Savings Campaign.
 - (b) H. S. Earle, State Director United States Boys' Working Reserve.
2. Measured Results of Supervised Study in Michigan Schools,
Professor F. S. Breed, University of Chicago, Chairman of
Committee.
Presented by Professor C. O. Davis, University of Michigan.
3. Reconstruction in History Teaching,
Professor Henry Johnson, Teachers' College, Columbia Uni-
versity.
4. A Study of the Retardation of the First Semester of the Ninth
Grade,
Professor George L. Jackson, University of Michigan.

BUSINESS MEETING

1. Reports of Officers.
2. Reports of Committees.
3. Miscellaneous Business.

EXHIBIT

Wednesday—Friday
Alumni Hall

The University of Michigan Library Extension Service will give an Exhibit showing the latest pamphlet literature on important questions of the day, and other suggestive materials of special interest to teachers of History, Civics, English, Public Speaking and Debating.

PROGRAM OF CONFERENCES

Central Standard Time

CLASSICAL INSTITUTE AND TWENTY-FIFTH CLASSICAL CONFERENCE

Chairman—Mr. Frederick O. Bates, Detroit Central High School.

Vice-Chairman—Miss Laura N. Wilson, Grand Rapids South High School.

Secretary—Miss Clara J. Allison, Michigan State Normal College.

Extension Committee—

Miss Clara J. Allison, Ypsilanti (1916-19).

Professor A. R. Crittenden, University of Michigan (1917-20).

Miss Blanche L. King, Detroit Northern High School (1918-21).

Papers strictly limited to twenty minutes.

Tuesday Forenoon, April 1

Small Lecture Room, Alumni Memorial Hall

10:00 o'clock

1. The Greek Religion and Mythology: I. Aegean Religion.*
Professor Campbell Bonner, University of Michigan.

Tuesday Afternoon, April 1

2:00 o'clock

Upper Lecture Room, Alumni Memorial Hall

2. After the World-War, What of Latin and Greek?
Francis W. Kelsey, University of Michigan.
3. General Discussion of Mr. Kelsey's paper, led by Professor A. S. Whitney, University of Michigan, and Principal F. L. Bliss, Jackson.
4. Latin and Greek as "First Aids" in the Study of Psychology,
Professor A. H. Harrop, Albion College.
5. Greek Leagues as Precursors of Modern Leagues,
Miss Dorothy Roehm, Detroit Northwestern High School.
6. A Dangerous Tendency in the Teaching of Roman History: A
Critique of Recent Text Books,
Professor A. E. R. Boak, University of Michigan.

4:15 o'clock

LECTURE

7. The Greek Religion: II. Primitive Elements in the Religion of
Historical Greece,*
Professor Campbell Bonner.

* Illustrated with the Stereopticon.

Tuesday Evening, April 1

8:00 o'clock

Upper Lecture Room, Alumni Memorial Hall

UNIVERSITY LECTURE

8. Research in Bible Lands: The More Recent Discoveries,*
Professor Albert T. Clay, Yale University.

Wednesday Forenoon, April 2

Small Lecture Room, Alumni Memorial Hall

10:00 o'clock

LECTURE

9. The Greek Religion: III. The Upward Path,*
Professor Campbell Bonner.

Wednesday Afternoon, April 2

Upper Lecture Room, Alumni Memorial Hall

2:00 o'clock

10. Roman Law in Modern Life and Education,
Professor A. R. Crittenden, University of Michigan.
11. Discussion,
Led by Professor J. H. Drake, University of Michigan.
12. Why Study Latin?
Mr. G. E. Van Loon, Highland Park High School.
13. How the Greeks got Their Gods,
Professor O. O. Norris, Michigan State Normal College.
14. Business Meeting.*

4:15 o'clock

UNIVERSITY LECTURE

15. Research in Bible Lands: The Empire of the Amorites.*
Professor Albert T. Clay, Yale University.

Wednesday Evening, April 2

Hill Auditorium

8:00 o'clock

UNIVERSITY LECTURE

16. Italy in the War and after the War. Illustrated with views furnished by the Italian Government,
Professor Charles Upson Clark, American Academy in Rome.

* Illustrated with the Stereopticon.

† Election of Chairman, for a term of two years, and of one member of the Extension Committee to succeed Miss Allison, whose term expires.

Thursday Noon, April 3

17. Social Half-hour and Classical Luncheon.
Social Half-hour, Parlors of Congregational Church 12:00-12:30.
Classical Luncheon, Parlors of Congregational Church 12:30.

Brief Addresses by:

Dean Henry M. Bates, Law School, University of Michigan.
Professor Albert T. Clay, Yale University.

Tickets for the Luncheon, 65 cents.

All who desire to attend the Luncheon are requested to send their names to Professor A. R. Crittenden, Forest Avenue, Ann Arbor. All friends of classical studies are invited.

Thursday Afternoon, April 3

Upper Lecture Room, Alumni Memorial Hall
2:00 o'clock

Joint Session of the Classical and Modern Language Conferences.
(Admission by badge)

18. Familiar Quotations: A suggestion,
Professor F. N. Scott, University of Michigan.
19. A Sane Schoolmaster's View of the Study of Latin,
Dr. Mary L. Hinsdale, Superintendent of Schools, Grandville,
Mich.
3:15 o'clock
20. French Art in the Service of the War, with Explanation of the
Exhibit brought by Professor Bursley from France, displayed in the Upper Lecture Room,
Professor Philip E. Bursley, University of Michigan.
4:15 o'clock

LECTURE

21. The Greek Religion: IV. The Picture-books of the Ancient
Greeks—A Study in Mythology and Art,*
Professor Campbell Bonner, University of Michigan.

Thursday Evening, April 3

University Hall

8:15 o'clock

22. LATIN PLAY IN ENGLISH, PRESENTED BY THE CLASSICAL
CLUB OF THE UNIVERSITY OF MICHIGAN
The Much-Woo'd Maiden. English Version of the Casina of Plautus by
Paul Nixon, adapted to the modern stage by George D.
Wilner.

In order to meet the expenses of the play it is necessary to make a charge for admission. Reserved seats 50 cents and 35 cents, war tax included. No libretto needed.

Seats may be reserved by addressing Dr. Orma F. Butler, Alumni Memorial Hall, Ann Arbor; tickets will be put in addressed envelopes and left at the Box Office, first floor of University Hall, where they may be called for April 2, 3.

* Illustrated with the Stereopticon.

MODERN LANGUAGE CONFERENCE

(Admission by badge)

Chairman—_____.

Secretary—Professor A. G. Canfield, University of Michigan.

Thursday Afternoon, April 3

2:00 o'clock

Room 203, University Hall

Presiding Officer—Professor R. Clyde Ford, State Normal College.

1. Report of the Committee on the Aims of Modern Language Teaching,
Professor J. A. C. Hildner, University of Michigan.
2. The Present Situation,
The Secretary.
3. Wanted: Teachers of French,
Miss Lilly Lindquist, Northwestern High School, Detroit.

3:15 o'clock

Joint Session of Classical and Modern Language Conferences in Upper
Lecture Room, Alumni Memorial Hall

4. French Art in the Service of the War,†
Professor Philip E. Bursley, University of Michigan.

Friday Afternoon, April 4

2:00 o'clock

Room 203, University Hall

Presiding Officer—Mr. G. E. Van Loon, Highland Park High School.

5. Some Essentials in the Teaching of French in the High School,
Professor Justin H. Bacon, Kalamazoo College.
6. Report of the Committee on Modern Languages in the Junior High School and in the Grades,
Mrs. Charlotte S. Hughes, Grand Rapids.
7. The Two Year High School Course in French.
8. French Clubs in High Schools.

ENGLISH CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

2:00 o'clock

High School Auditorium

Chairman—Mary Derby, Lansing.

Secretary—Louise George, Ann Arbor.

1. The News Paper,
Miss Minnie F. Votruba, Traverse City.
2. Experiments in Teaching Literature,
Miss Vinora Beal, Michigan State Normal College.
3. Needed Changes in English Teaching,
Professor William W. Johnston, Michigan Agricultural College.

Note: Teachers of English and History are invited to visit the University Library Extension Service Exhibit in Alumni Hall. It is of special interest to Teachers of History, Civics, English, Public Speaking, and Debating.

† Illustrated by a collection of posters, medals, etc.

Friday Afternoon, April 4

2:00 o'clock
High School Auditorium

Symposium on Oral English.

4. My Experience in Teaching Oral English,
Miss Martha Clay, Grand Rapids Central High School.
5. Oral English for the Blind,
Superintendent C. E. Holmes, School for the Blind, Lansing.
6. Methods and Aims in Reading Aloud,
Professor R. D. T. Hollister, University of Michigan.

HISTORY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

1:30 o'clock

Chairman—(Retired from Teaching).

Secretary—Miss Mary Harden, South High School, Grand Rapids.

1. A Course in World History,
Professor C. O. Davis, University of Michigan.
2. The Use of the Problem Method in History Teaching,
Mr. Samuel Levin, Central High School, Detroit.
3. The British Empire and Its Future,
Professor Arthur L. Cross, University of Michigan.
4. Opportunities for Correlation in History Teaching,
Miss Jeanette Tennant, Eastern High School, Detroit.
5. A Proposed Course of Study for Senior High Schools,
Miss Mildred Hinsdale, Central High School, Grand Rapids.
- Discussion,
Professor Earle W. Dow, University of Michigan.
Mr. L. L. Forsythe, Principal of High School, Ann Arbor.
6. Business Meeting:
Report of Committee on Organization,
Professor Carl E. Pray, Michigan State Normal College.

Note: See invitation under English Conference

HISTORY CONFERENCE

(Admission by badge)

Friday Afternoon, April 4

1:30 o'clock
Room C-3, High School

7. The Relations of the United States and Great Britain,
Professor Claude H. Van Tyne, University of Michigan.
8. What History shall be taught in the Junior High School—American History, European and American History, or World History, including the United States?
Professor Henry Johnson, Teachers' College, Columbia University.
(An informal discussion will follow this address.)
9. Business Meeting.

PHYSICS AND CHEMISTRY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

1:30 o'clock

Physical Laboratory, West Lecture Room

Chairman—Professor C. W. Greene, Albion College.

Vive-Chairman—Professor B. W. Peet, Michigan State Normal College.

Secretary—Mr. H. E. Hammond, University of Michigan.

1. Physiological Effects of the Adulteration of Foods,
Mr. Floyd W. Robison, Detroit Testing Laboratory.
2. The Physics of the Submarine,
Professor F. R. Gorton, Michigan State Normal College.
3. Duty Free Importations and the High School Chemist's Responsibility,
Mr. J. C. Moore, Cass Technical High School, Detroit.
4. Physics as a Profession,
Dr. E. P. Hyde, Director of Research Laboratory of National Light Company, Cleveland.
5. Brief Business Session.
6. Poison Gases in Warfare,
Mr. Byron Corbin, Michigan State Normal College.
7. Preparation of Phosphine Gas,
Mr. H. W. Baker, Battle Creek High School.

Note on References. Copies of the list of reference books prepared by Mr. H. N. Chute, of Ann Arbor High School, for a former Conference, will be available for members of the Conference. Copies of a revised list of reference books and magazines for students and teachers of Chemistry has been prepared by Professor B. W. Peet. A list and an exhibit of some interesting books for teachers of Physics has been prepared by Professor D. L. Rich. Copies of the above mentioned reference lists may be procured by those who desire them, between the sessions of the Conference.

Friday Afternoon, April 4

2:00 o'clock

1. Practical Training for Work in a Chemical Plant from the Standpoint of the Chemical Industry,
Dr. W. M. Clark, The Dow Chemical Company.
2. The Vacuum Tube in Radio Communication with Experimental Illustrations,
Professor N. S. Williams, University of Michigan.
3. A New Aid in Chemical Engineering,
Mr. H. Spurrier, Jeffrey-Dewitt Porcelain Company, Detroit.
4. A Series of short Lecture Table Experiments.
5. Business Session.

MATHEMATICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

12:15 o'clock

Luncheon at Baptist Church.

(Reservations for the luncheon may be made by writing Miss Mary L. Welton, 419 N. Ingalls St., Ann Arbor, before March 31st. Tickets 65c.

2:00 o'clock

Lecture Room, Tappan Hall

Chairman—Miss Sadie M. Alley, Northwestern High School, Detroit.

Secretary—Miss Mary Louise Welton, Ann Arbor.

1. Standardized Tests in 1st Year Algebra,
Professor H. O. Rugg, University of Chicago.
2. Should Algebra be Taught Prior to the 9th Grade?
Mrs. Edith J. Rauch, Northwestern High School, Detroit.

Discussion:

1. Mr. G. C. Bartoo, Jackson.
2. Mr. Fred Fricke, Nordstrum High School, Detroit.
3. Miss Emilie Townsend, South High School, Grand Rapids.
4. Mr. Roy W. Stevens, Principal Lincoln School, Detroit.
5. Miss Orpha E. Worden, Detroit City Normal.
6. Miss Edith Pardee, Central High School, Detroit.
7. Mr. J. B. Thomas, Principal Detroit City Normal, Detroit.

Friday Afternoon, April 4

2:00 o'clock

Lecture Room, Tappan Hall

Symposium: Mathematics and the War

1. Navigation,
Professor R. H. Curtiss, University of Michigan.
2. Ballistics,
Professor John W. Bradshaw, University of Michigan.
3. The Firing of a Large Caliber Gun,
Major Peter Field, University of Michigan.
4. Mathematics After the War,
Professor W. B. Ford, University of Michigan.

BIOLOGICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

2:00 o'clock

Natural Science Building, Room F.214

Chairman—Miss Ethel W. B. Chase, Detroit Junior College.

Secretary—Miss Helen B. King, Saginaw.

1. Biology in the Secondary Schools from the Administrative Point
of View,
Supt. Alvin N. Cody, Flint, Mich.
2. The Relation of the Children's Museum to the Public Schools,
Miss Gertrude A. Gilmore, Detroit City Normal.
3. The Future Beginning Course in College Zoology,
Dr. Franklin Shull, University of Michigan.
4. General Discussion.

Friday Afternoon, April 4

12:00 Noon

Luncheon for Biologists, Room B 100, Natural Science Building, 60c.

Please notify Dr. Okleberg or secure tickets at the door

2:00 o'clock, Eastern Time

Room F.214

5. Symposium on Faunal Distribution.
The Ecological Distribution of Animal Life.‡
6. The Environmental Criteria on Distribution of Animals in the Past,
Dr. E. C. Case, University of Michigan.
7. The Distribution of the Races of Man,
Dr. Bertram Smith, Michigan State Normal College.
8. Open Forum.
9. Report of the Committee on Physiology,
Miss Grace Ellis, Grand Rapids, Michigan.
10. University Illustrated Lecture: 8:00 P.M. Camouflage in War Nature, Gerald H. Thayer, New York, Hill Auditorium. The Public invited.

COMMERCIAL CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

2:00 o'clock

Room B-8, High School

Chairman—Mr. B. D. Stowell, High School of Commerce, Detroit.

Secretary—Miss Miriam O. Barton, Highland Park.

1. Business as a Profession,
Mr. W. H. Shaw, President Shaw's Schools, Toronto; Treasurer Detroit Business University; 12 years member Board of Education, Toronto.
2. How to Attain a Fixed Aim,
Mr. Edgar F. Roberts, Detroit. Salesman.
3. Educational Work in the Cantonments,
Mr. D. W. Springer, Director Educational Work, Government Cantonments.
4. —————
Mr. F. C. Nichols, Assistant Director for Commercial Education, Federal Board of Vocational Education, Washington, D. C.

Note:—Provided a sufficient number of reservations are made by March 27, a luncheon at 75c a plate will be served Thursday noon, Eastern time, at the M. E. Church. Make reservations with Mr. O. V. Adams. One of the above speakers will deliver his address at this luncheon.

‡ Speaker to be announced.

ART CONFERENCE

(Admission by badge)

Friday Afternoon, April 4

1:30 o'clock

Chairman—Miss Agnes Van Buren, Grand Rapids.

Secretary—Miss Ada L. Whitney, Detroit.

1. The Relation of Art to Manual Training,
Mr. C. A. Armstrong, Assistant Supervisor of Drawing, Detroit.
2. How are We, as Art Teachers, Meeting the Industrial Needs of Our Locality, and What means are We Using to Bring About Intelligent Co-operation of the Community?
Miss Beulah Wadsworth, Supervisor of Drawing, Kalamazoo, Questions for Discussion.
3. In the Correlation of Vocational and Academic Departments in High Schools, Should Art Work be Limited to Mechanical Drawing?
Led by Miss Alice V. Guysi, Supervisor of Art, Detroit.
4. Shall Vocational work be the chief aim of Art education or a general Art training for better appreciation of industrial problems?
Led by Miss Eleanor Judson, Western State Normal, Kalamazoo.
An exhibit, illustrating industrial Art work of the Public Schools from the Kindergarten through the Grades, High Schools, and University will be shown in the Gallery of the Alumni Building Thursday and Friday.

GEOGRAPHY AND PHYSIOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

1:00 o'clock

Room 217-G New Science Building

Chairman—L. H. Wood, Western Normal School.

Secretary—F. W. Frostic, Wyandotte.

General Geography Session

Topic—The Teaching of Geography in Michigan

1. Geography then and now,
G. L. McCulloch, Ass't. Supt. of Schools, Jackson, Michigan.
2. The function of the High School in fitting Teachers of Geography,
Mr. Chas. C. Wilcox, Kalamazoo High School.
3. What is the County Normal doing to solve the Problem of Geography Teaching?
Miss Flora A. King, County Normal, Marshall.
Miss Ellen Anderson, County Normal, Flint.
4. The Teaching of Geography in Rural Schools,—the "Real and the Ideal,"
Mr. Lloyd Goodrich, Commissioner of Allegan County.
5. Geography in the Medium of the Normal Training School,
Miss Edith Seekel, Western State Normal School.

MICHIGAN SCHOOLMASTERS' CLUB

6. Is the Normal doing its part in fitting Teachers of Geography?
Prof. R. D. Calkins, Central Normal School.
7. How can the University help in the Teaching of Geography in the State?
Prof. C. O. Sauer, University of Michigan.
8. The Plight of Geography and the Remedy,
 - (a) through uniformity of aim,
 - (b) by the preparation of teachers,
 - (c) by the co-operation of National and State agencies in furnishing material to teachers.

General Discussion.

Friday Afternoon, April 4

1:00 o'clock

Room 217-G, New Science Building

1. Geographic Influences affecting the Settlement and Development of the Thumb,
Supt. F. W. Frostic, Wyandotte.
2. Influences of Glaciation on the Geography of Michigan,
Mr. Frank Leverett, United States Geological Survey.
3. Courtis' Standard Location Tests as Used in the Detroit Public Schools,
Mr. Burton A. Barnes, Director of Geography, Detroit.
4. Land and Sea Breezes of the Great Lake Cities,
Miss Genevieve Clark, Belleville.
5. Geography as a Practical Subject,
Mr. A. R. Gilpin, Northwestern High School, Detroit.

MANUAL TRAINING CONFERENCE

(Admission by badge)

Friday Afternoon, April 4

2:00 o'clock

Room C-1, High School

Chairman—Professor George E. Myers, University of Michigan.
Secretary—Professor Arthur E. Bowen, Western State Normal.

1. Motivating Manual Training—a Lesson from the War,
Mr. J. H. Trybon, Director of Manual Training, Detroit Mich.
2. Starting Industrial Education in a City of 12,000 Population,
Mr. Omar I. Hall, in charge of Industrial Education, Adrian.
3. A New Industrial Course for Eighth Grade Boys,
Mr. E. Lewis Hayes, Director of Mechanical Work, Cass Technical High School, Detroit.
4. Launching the Half-Time Plan,
C. A. Hach, Principal Arthur Hill Trade School, Saginaw, W. S.
5. What is the State Board of Control for Vocational Education Doing for Industrial Education?
Professor George E. Myers, State Supervisor of Industrial Education.

Note:—The Manual Training and Home Economics Conferences will have a joint luncheon on Friday, April 4, at 12:00 o'clock at the Michigan Union, the speaker to be Miss Cleo Murtland, University of Michigan.

EDUCATIONAL PSYCHOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 3

2:00 o'clock

Room B-6, High School

Chairman—Professor Samuel Renshaw, Western State Normal.

Secretary—Principal J. F. Thomas, Detroit City Normal.

General Topic—The Content of Psychology Courses in Teacher Training Curricula:

1. Prof. H. C. Lott, Michigan State Normal College, Ypsilanti.
2. Dr. Gertha Williams, Detroit City Normal.
(20 minutes each).
Discussion. (10 minutes each.)
3. From the Point of View of the Director of Teacher Training,
Principal John Thomas, Detroit City Normal.
4. From the Point of view of the School Administrator,
a—Superintendent E. J. Lederle, Hastings.
b—Professor John C. Hoekje, Western State Normal School,
Kalamazoo.
5. From the Point of view of the Teacher,
a—In the Elementary School,
Mrs. Lou I. Sigler, Grand Rapids.
b—In Special Classes,
Miss Alice B. Metzner, Psychological Clinic, Detroit.

HOME ECONOMICS CONFERENCE

(Admission by badge)

Friday Afternoon, April 4

Home Economics—Manual Training Luncheon, 12:00 o'clock, Michigan Union. Speaker: Professor Cleo Murtland, University of Michigan.

2:00 o'clock

Room B-1, High School

Chairman—Miss Louise S. Mans, Neinas Junior High School, Detroit.
Secretary—

1. Improvement of Teachers while in Service,
President Charles McKenny, Michigan State Normal College.
2. By What Means may Home Economics Teachers become Leaders
in Community Work,
Dean Mary E. Edmonds, Michigan Agricultural College.
3. Vitamins: Their Necessity and Distribution in Foods,
Professor J. B. Pollock, University of Michigan.
4. For What Improvements Should Home Economics Teachers Stand
(a) in Equipment,
(b) in Size of Classes,
(c) in Time Allotment,
(d) in Scheduling of Classes,
Mrs. Martha H. French, Head of Household Arts Department,
Michigan State Normal College.
5. Some Phases of Home Economics During War Emergencies,
Miss Grace Greenwood, Social Director of Martha Cook Building,
University of Michigan.
6. Discussion: What should be Emphasized in the Teaching of
Home Economics:
(a) In the Grades, led by Miss Adeline Simon, Highland Park.
(b) In the High School, led by Miss Caroline Lewis, Ypsilanti.
(c) In the College, led by Miss Edna Garvin, Michigan Agricultural College.
7. Business Meeting.

LIBRARY CONFERENCE

(Admission by badge)

Friday Afternoon, April 4

2:00 o'clock

Room 173, New Science Building

Chairman—Miss Fanny D. Ball, Central High School, Grand Rapids.
Secretary—Mabel L. Asman,

1. The Human Side of High School Librarianship,
Dr. Laura Benedict.
2. Americanization of Training for Citizenship,
by one of the Schoolmasters.
3. Discussion of new Books useful for High School Libraries,
by Librarians from different Libraries led by Miss Poray of
Northeastern High School, Detroit.
4. Reports of Committees.

Members of the Schoolmasters' Club

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Members for Ten or More Consecutive Years

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ANN ARBOR	Conover, L. Lenore	Jones, Anna S.
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Essery, R. F.	McMillan, D. W.	JACKSON
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Wines, L. D.	DETROIT	MANCHESTER
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Krell, Carrie	Miller, E. L.	Gilday, Selma
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CENTRAL NORMAL	DETROIT	NILES
Pearce, W. H.	SOUTHEASTERN	Allen, Hilah L.
Warriner, E. C.	Corns, J. H.	NORMAL COLLEGE
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Cleary, P. R.	Whitney, Edward	D'Ooge, B. L.
DETROIT	DETROIT WESTERN	Harvey, N. A.
Bishop, Mrs. H. A.	Bancroft, Nellie E.	Lyman, E. A.
Boyer, C. J.	Frutig, Marie L.	Pett, B. W.
Cody, Frank	Hempsted, Joanna K.	Priddy, Bessie L.
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	Nutt, H. D.	
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Crane, Mrs. S. A.
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McDonald, A.
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Warner, W. W.
SUPERIOR, WIS.
Wade, C. G.
UNIVERSITY
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Bonner, Campbell
Bradshaw, J. W.
Canfield, A. G.
Crittenden, A. R.

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Dow, E. W.
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Glover, J. W.
Hall, A. G.
Hauhart, W. F.
Hildner, J. A. C.
Kelsey, F. W.
Lichty, D. M.
Markley, J. L.
Meador, C. L.
Nelson, J. Raleigh
Newcombe, F. C.
Rich, D. L.
Running, T. R.
Scott, F. N.

Scott, I. D.
Swain, G. R.
Tilley, M. P.
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Winkler, Max
Ziwet, Alexander
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Burnham, Ernest
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Harvey, L. H.
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WYANDOTTE
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CLEARY'S BUS. COL.
Cleary, P. R.
DETROIT
Beverly, Clara
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DETROIT CASS TEC.
Allen, E. G.
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Farnsworth, Mary F.
DETROIT CENTRAL
Bates, F. O.
Bishop, Helen L.
Bowerman, C. B.
Brown, Jessie
Brown, J. S.
Chase, Ethel W. B.
Copeland, Cornelia A.
Darnell, Albertus
Gee, E. F.
Hine, Katherine G.

Irwin, F. C.
Levin, S. M.
Mackenzie, David
Malcomson, Rachel A.
Mutschel, Matilda
Thompson, E. C.
Thompson, Margaret
Watt, Isabella R.
DET. CITY NORMAL
Conover, L. Lenore
DETROIT EASTERN
Fuhry, E. G.
Harvey, Caroline C.
Linn, Flora R.
Marsh, Alice Louise
Pettee, Edith E.
Strubel, R. H.
DETROIT NEINAS
JUNIOR
Nielsen, N. C.
DETROIT
NORDSTRUM
McMillan, D. W.
Murdock, G. W.
DETROIT
NORTHEASTERN
Cooper, L. G.
Fyan, Lila E.
Kimball, Edith M.
Novak, Chas. W.
Raycraft, R. E.
DETROIT
NORTHERN
Bartlett, A. E.
Bechtel, G. G.
Isbell, W. N.
Miner, M. Lovicy
Tanis, J. E.

DETROIT
NORTHWESTERN

Alley, Sadie M.
Carey, Eleanor J.
Chapman, I. E.
Haigh, Margaret
Jones, A. F.
Liskow, Julia M.
Miller, E. L.
Porter, J. E.
Rivett, B. J.
Wentworth, Wm. H.
Wilson, Jean W.

DETROIT
SOUTHEASTERN

Corn, J. H.
Phelps, Nancy S.
Whitney, Edward

DETROIT WESTERN

Bancroft, Nellie E.
Fruitig, Marie L.
Hempsted, Joanna K.
Hendershott, E. Pearl
Hickok, D. W.
Holmes, E. L.
Holmes, F. H.
Matthews, J. W.
Meiser, Augusta B.
Morse, Wm. A.
Parker, Flora E.
Pitts, Dora
Porter, E. H.
Roper, Gertrude
Sundstrum, Elizabeth
Waples, Marcia
Warner, W. E.
Weir, W. W.
Wilkinson, A. O.
Wiltsie, Katherine D.
Woodward, Mabel C.

FERRIS INSTITUTE
Ferris, W. N.

FLINT

Cody, A. N.
Nutt, H. D.
Parmelee, L. S.
Puffer, W. J.
Wellwood, J. E.

GRAND RAPIDS

Davis, Jesse B.
Greeson, W. A.
Hulst, Cornelia S.
Jones, Anna S.

HIGHLAND PARK

Knapp, T. J.
Locke, Frances
Locke, J. R.
Margah, Mrs. K. C.

Prakken, Wm.
Smith, P. H.
Van Loon, G. E.
HILLSDALE COL.
Mauck, J. W.

HOWELL

Sharpe, E. Alma

JACKSON

Kempf, Flora
Marsh, E. O.

KALAMAZOO

Worth, E. N.

KALAMAZOO COL.

Praeger, W. E.
Williams, C. B.

LANSING

Gallup, E. E.

LINDEN

Burr, C. J.

MANCHESTER

Kirchhofer, Marie

MICH. AGRIC. COL.

Bessey, Ernst A.

MIDLAND

Mott, J. B.

MONROE

Cantrick, G. T.
Gilday, Selma

MUNISING

Abell, E. L.
Smith, R. H.

MUSKEGON

Craig, J. A.

NILES

Allen, Hilah L.

NORMAL COLLEGE

Allison, Clara J.
Clark, Genevieve
D'Ooge, B. L.
Goddard, Mary A.

Gorton, F. R.
Harvey, N. A.

Lott, H. C.
Lyman, E. A.

McKay, F. B.
McKenny, C. C.

Norris, O. O.
Peet, B. W.

Pray, Carl E.
Priddy, Bessie L.

Smith, B. G.
Strong, E. A.

NORTHERN

NORMAL

Lewis, W. F.
Spooner, C. C.

OAK PARK, ILL.

Lee, L. B.

PEEKSKILL, N. Y.
Bishop, J. Remson

OXFORD, OHIO

Bishop, Elizabeth L.

PONTIAC

Dudley, S. M.
Hazelton, R.
McCarroll, Sarah
Travis, Ora

PORT HURON

Crane, Mrs. S. A.
Davis, H. A.

RIVER ROUGE

McDonald, A.

SAGINAW

Arbury, F. W.
King, Helen B.
Warner, W. W.

ST. JOHNS

Buck, F. P.

SUPERIOR, WIS.

Wade, C. G.

UNIVERSITY

Beman, W. W.
Bonner, Campbell
Bradshaw, J. W.
Canfield, A. G.
Crittenden, A. R.

Cross, A. L.
Davis, C. O.

Dow, E. W.
Edmonson, J. B.

Finney, B. A.
Ford, W. B.

Glover, J. W.
Hall, A. G.

Hauhart, W. F.
Hildner, J. A. C.

Hutchins, H. B.
Jackson, G. L.

Karpinski, L. C.
Kelsey, F. W.

Kraus, E. H.
Leverett, Frank

Lichty, D. M.
Markley, J. L.

Meador, C. L.
Nelson, J. Raleigh

Newcombe, F. C.
Pollock, J. B.

Rich, D. L.
Running, T. R.

Scott, F. N.
Scott, I. D.

Shull, A. Franklin
Swain, Geo. R.

Tilley, M. P.
Van Tyne, C. H.

Wenlev, R. M.

Whitney, A. S.
Williams, N. H.
Winkler, Max
Winter, J. G.
Ziwet, Alexander

WESTERN NORMAL
Burnham, Ernest
Everett, J. P.
Harvey, L. H.
Waldo, D. B.

WYANDOTTE
Frostic, F. W.
YPSILANTI
Hardy, Carrie A.
Ross, Ite Forrest

List of Members for 1919

ADRIAN

Buck, Gertrude
Hall, O. I.
Hayes, Beatrice
Olthoff, Jacob
Reed, E. J.
Steck, Mary

ALBION

Bretz, Martha
Duddles, C. M.
Dundas, Muriel
Fast, L. W.
Head, W. F.
Robinson, Sybil G.
Worun, Alice M.

ALBION COLLEGE

Cooley, E. H.
Evans, O. F.
Fall, Delos
Goodrich, F. S.
Greene, C. W.
Harrop, A. H.
Pitkin, Orpha O.

ALLEGAN

Abbott, H. C.
Abernethy, Mildred
Adams, Harriet
Bauer, Enid
Beach, Eleanor
Beebe, Hazel
Brown, Leo
Burgess, Elizabeth
Eldred, Verne
Engle, Allie I.
Farnsworth, Elsie
Goodrich, Mrs. C. L.
Hare, Mrs. Alice
Hicks, Mrs. F. H.
Higgins, Stella
McKinnon, Mae
McLaughlin, Fthel
Maentz, Mrs. Elizabeth
Markham, Rachel M.
Monahan, Ruby
Perkins, Frances
Reid, Laura F.
Sawyer, Lena
Schneider, Marguerite
Schumann, Edna
Simpson, Alleyne
Sprau, Hattie

Stratton, Nellie M.
Tyndall, Jean
Unger, Louise
Wilson, Hattie N.

ANN ARBOR

Adams, O. V.
Allen, F. P.
Bennett, Ella M.
Breed, Gertrude T.
Brown, Ruth
Butler, L. A.
Chute, H. N.
Cornwell, Matie P.
Dersham, Gladys
Donahue, Eileen M.
Downs, Mrs. Lula
Duff, Lela
Ehle, C. E.
Essery, E. E.
Forsythe, L. L.
Francis, E. H.
George, Louise
Glasier, Lucy
Goodell, F. Maude
Hamilton, F. G.
Harris, S. Franc
High, J. B.
Highley, A. M.
Hodson, Catherine E.
Horine, R. C.
Hubbard, Kate C.
Jocelyn, L. P.
Klager, Benj.
McMullen, Maude
Miller, Jean
O'Brien, Sarah
Osborn, Lurene
Palmer, Mrs. J. V.
Parry, Edna
Plympton, Mrs. C. C.
Porter, Alice
Purtell, Catherine
Raymond, F. E.
Rennie, Florence M.
Robertson, Florence E.
Robison, Cora
Samuelson, A.
Schaible, Ida M.
Slauson, H. M.
Springer, D. W.
Stark, Evelyn
Steele, Anna

Sturgis, Christine
Sturgis, Marchie
Ticknor, Frances
Tinkham, Lona C.
Van Kleeck, Mabel
Weinmann, Louise
Welton, Mary Louise
Wines, L. D.
Zampiere, P. S.

BAD AXE

Kempf, Elizabeth
Weltmann, Ruth J.

BATTLE CREEK

Atkinson, H. R.
Baker, H. W.
Cimmer, Alice M.
Coburn, W. G.
Krell, Carrie
MacKenzie, Flora
Marshall, Anna E.
Maveety, Helen
Price, G. G.

BAY CITY

Asman, Mabel L.
Beese, Julia H.
Butterfield, G. E.
Campbell, Florence
German, W. L.
Killam, Olive
Lord, Henrietta
McIlhenny, Mary E.
Martiny, Clara
Monahan, Mary C.
Monks, L. A.
Perkins, W. L.
Schroeder, Matilda
Sharp, E. M.
Skinner, G. H.
Ten Eyck, H. E.
Touse, Chas. G.
Ueberhorst, Gail K.
Wells, Berta A.

BELDING

Skinner, S. J.

BENTON HARBOR

McKay, Florella
Platt, Helen
Snyder, F. P.

BERRIEN SPRINGS

Preble, E. F.

BIRMINGHAM
Schlaack, Eula
Toothacker, W. S.
Vliet, Clarence

BRECKENRIDGE
Becker, M. A.

BUCHANAN
Jefferies, Angeline

BYRON
Crawford, D. J.

CADILLAC
Crandall, C. W.
McGee, G. A.

CENTRAL NORMAL
Barnard, Anna M.
Brooks, K. P.
Calkins, R. D.
Cobb, M. E.
Gilligan, Margeret
Kelley, John
Larzelere, C. S.
Lowrey, H. H.
Munson, J. M.
Pearce, W. H.
Rowe, E. C.
Warriner, E. C.

CHARLOTTE
Jones, Jessie D.

CHICAGO, ILL.
Johnson, H. M.
Woessner, Alice

CLARE
Gullen, L. S.

CLEARY'S BUS. COL.
Cleary, P. R.

COLDWATER
Johnson, T. E.
Swank, O. M.

COLON
Neveth, A. A.

DEARBORN
Adams, R. H.

DECKERVILLE
Vander Belt, B. H.

DETROIT
Allmendinger, W. H.
Barns, Burton A.
Beverly, Clara
Birkam, George
Bishop, Mrs. H. A.
Blair, Maude
Foyer, C. J.
Clark, Lucy M.
Cody, Frank
Columba, Sister M.
Courtis, S. A.

Dawson, Dorothy
Laxon, W. E.
Downing, Emma L.
Ellis, W. A.
Engel, Anna
Engel Erma
Frederick, O. G.
Giffin, Bertha
Gladden, T. A.
Gourlay, Jean
Grant Julia
Guysi, Alice V.
Guysi, Jeanette
Hall, H. P.
Hart Alice V.
James, H. P.
Kaufman, H. J.
Keppler, F. R.
Lightbody, Wm
McAdams, Grace P.
McSweeney, Katherine
Mahony, Mary M.
Mandeville, J. M.
Merrill, John
Metzner, Alice
Morse, J. A.
Packer, P. C.
Shaw, E. R.
Spain, C. L.
Stark, Amelia M.
Stevens, Mrs. F. B.
Stevens, R. W.
Trybo, J. H.
Turner, Mary
Twiggs, T. P.
VanAdestine, Gertrude
Weidemann, Mathilde
Willmarth, Mariette

DETROIT CASS
TECH

Allen, E. G.
Ball, C. J.
Chaney, L. K.
Chaney, O. L.
Clendening, Frances
Comfort, B. F.
Crandall, E. R.
Doub, A. V.
Egan, Ellen W.
Farnsworth, Mary F.
Fitch, Jeanette E.
Gray, C. I.
Griffith, T. M.
Griswold, Lena
Hayes, E. L.
Hoyt, H. C.
Jenney, H. R.
Keal, H. M.

Kochler, I. G.
Leonard, C. J.
Linton, Mrs. Ellen
Owens, S. L.
Phillips, Nellie G.
Ray, H. B.
Richmond, J. B.
Winton, Grace E.
Wolber, J. G.
DETROIT CENTRAL
& JUNIOR COL.
Ackley, Hugh M.
Alabaster, Georgette R.
Anderson, Grace
Andre, Elonia
Baldwin, J. W.
Bates, F. O.
Bishop, Helen L.
Bowerman, C. B.
Brown, J. S.
Brown, Jessie
Burroughs, W. G.
Campbell, Caroline E.
Carter, G. W.
Chapman, H. H.
Chase, Ethel W. B.
Clark, Willis H.
Coats, R. J.
Collins, John A.
Conover, Kate B.
Copeland, Cornelia A.
Darnell, Albertus
Davis, D. H.
Dutoit, H. S. C.
Fell, D. J.
Fishbaine, S. S.
Gee, E. F.
de Gomar, Juan A.
Hall, Grace
Hanke, F. E.
Harrah, Grace E.
Hill, Laudrey
Hine, Katherine G.
Hopkins, Florence M.
Huffman, R. F.
Hume, Janet A.
Irland, Helen
Irwin, F. C.
Jones, Mrs. Grace C.
Levin, S. M.
Lowry, Florella R.
Mackenzie, David
Malcomson, Rachel A.
Mutschel, Matilda
Purdie, Edith B.
Roby, Anne M.
Sargeant, Charlotte H.
Schwartz, Elise M.
Shissler, Valerie
Sprague, R. E.

Stoll, N. R.
 Thompson, E. C.
 Thompson, Margaret
 Vaughan, H. R.
 Watt, Isabella R.
 Wheateley, M. A.
DET. CITY NORMAL
 Conover, L. Lenore
 De Voe, Una
 Goodrich, Grace E.
 Hard, Helen L.
 Logan, Jean W.
 Roller, Fannie
 Thomas, J. F.
 Williams, Gertha
DETROIT EASTERN
 Abbott, Emily M.
 Angell, Julia M.
 Browne, E. Mae
 Chamberlain, Louise T.
 Cook, Frances C.
 Coyle, Harriette
 Currie, Alice L.
 Diederick, Florence
 Dietz, Ada K.
 Doyle, L. E.
 Drew, Percy E.
 Duffy, Irene A.
 Fitzpatrick, Claire
 Frazier, J. W.
 Fuhry, E. G.
 Gartner, Katherine M.
 Harbeck, Ida C.
 Harriman, Fern
 Harris, Charlotte
 Harvey, Caroline C.
 Henze, Paula
 Hoyt, Cheever
 Johnston, Anna M.
 Kaye, Elizabeth
 Klein, Adele L.
 Kolmesh, Margaret
 Linn, Flora R.
 Mahoney, Anna G.
 Mann, L. B.
 Marsh, Alice Louise
 Marsh, Florence H.
 Mead, Madge
 Merriam A. R.
 Miller, Miss M
 Mount, J. B.
 Newman, Lillian
 O'Dea, Harriet
 Palmer, Cora E.
 Patterson, S. J.
 Pettee, Edith E.
 Putnam, R. R.
 Quinn, Marion H.
 Schmidt, E. H.
 Sewell, Grace M.

Sooy, F. W.
 Stecker, M. G.
 Struble, R. H.
 Tennant, Nettie J.
 Wardwell, Theodosa
 Waterburg, M. G.
 Wood, Mabel L.
DETROIT HIGH
SCHOOL OF COM-
MERCE
 Caldwell, Jessie M.
 Connolly, Helen M.
 Cross, Genevieve
 Gabler, Bertha E.
 Holland, Cora E.
 Holmes, Margaret
 Howell, J. C.
 Jencks, M. A.
 King, H. F.
 Knights, Ethel L.
 Labadie, S. M.
 Ludke, C. W.
 McDougal, W. A.
 McHenry, Ellen
 Merriman, Vivien
 Phinney, Elise
 Rich, L. H.
 Schell, H. G.
 Skeels, A. D.
 Slater, Inez
 Stowell, B. D.
 Tilton, Edith
 Wiggins, Clara
DETROIT
JOYCE JUNIOR
 Ammon, Bertha
 Baxter, Carrie
 Bullis, Helen P.
 Coyne, Estella
 Fitch, Mary U.
 Foster, Christine
 Jones, K. A.
 Norton, Katherine
 Raymond, L. C.
 Ross, Mrs. Margaret
 Tighe, Clara
DETROIT NEINAS
JUNIOR
 Blew, Helen
 Bromley, Edna
 Fox, E. J.
 Hepburn, Alice R.
 Hornung, H. V.
 Lamb, Eunice
 Mans, Louise S.
 Miller, A. L.
 Nielsen, N. C.
 Parsons, Inez
 Reichle, H. C.
 Tuthill, Helen

DETROIT
NORDSTRUM
 Abair, Effa M.
 Amberson, Matilda
 Becker, Lulu M.
 Benson, Earl F.
 Bullock, D. Edith
 Cox, Chas. C.
 Ettinger, L. P.
 Fricke, Fred H.
 Hamilton, Amanda J.
 Hamilton, Gladys
 Harwick, C. A.
 Haug, Bernice L.
 Hendricks, Loretta
 Homrighaus, Ruth
 Jones, Winnie M.
 Lenzner, Ruth
 Lyons, Ward
 McMillan, D. W.
 Marsh, Elizabeth H.
 Miller, L. W.
 Miller, Margaret
 Mote, E. L.
 Muffitt, T. S.
 Murdock, G. W.
 Parke, Cleantha
 Paterson, Jessie
 Petry, Harriet
 Rasey, Marie
 Reichle, Lewis
 Seaver, O. G.
 Slick, R. A.
 Spencer, Bernice
 Spicer, C. E.
 Stone, Raymond
 Thomas, Anne
 Waterbury, Catharine
 Wilson, Lenore
 Wixson, W. W.
 Woodard, W. H.
DETROIT
NORTHEASTERN
 Babcock, Gertrude M.
 Bright, Cora E.
 Carson, Ella M.
 Chapel, B. J.
 Colborne, Martha
 Cooper, L. G.
 Cox, W. H.
 Delowozynski, Ed.
 Eddy, H. N.
 Foster, Frances A.
 Fyan,, Lila
 Gardner, L. B.
 Grobbel, Elizabeth C.
 Jackson, Virginia M.
 Jennings, Emily S.
 Kimball, Edith M.
 Kolb, Marguerite

Kolmesh, Ann
Ladd, Bessie F.
Laird, Ethel M.
Lusky, Alma
McConne, J. M.
Mullen, Mrs. Selah W.
Novak, Chas. M.
Perry, Sherman
Plee, N. Octavia
Porey, Aniela
Porter, H. C.
Raycraft, R. E.
Sanford, James
Sheehan, Genevieve M.
Spriegel, Gladys S.
Willard, G. W.
Wilson, Mrs. Lenore
DETROIT

NORTHERN

Allman, R. V.
Bach, Ellen
Barnes, C. C.
Bartlett, A. E.
Barton, A. L.
Bechtel, G. G.
Bird, E. J.
Blanchard, C. W.
Bradford, Florence
Clark, Sophia
Clawson, Edna A.
Cochrane, Jane A.
Cole, Consello J.
Earnley, Florence
Elliott, Ruth
Emmons, O. A.
Fales, Beatrice
Fleming, Nina A.
Fox, Ethyl M.
Frye, W. J.
Hayes, H. B.
Hayner, Elizabeth
Hill, B. E.
Hill, Olah J.
Hoffman, Harriet
Hutzel, Irma
Ireland, Bernice
Isbell, W. N.
Jarrard, Erminah
King, Blanche
King, Ruth
Lanius, Tudor
Lutz, Gretchen
McGrath, A. S.
Madison, O. E.
Malone, Bertha
Miner, M. Lovicy
Monroe, Grace
Nichols, Nona
Norton, Eleanor
Pierce, Virginia

Powels, J. J.
Pulford, Bertha C.
Rockafellow, Louise
Rolfe, E. C.
Sayres, C. W.
Schaible, Clara K.
Smith, Florence M.
Solar, F. I.
Stuart, Mrs. A. M.
Sutherland, Olive M.
Tanis, J. E.
Teninga, Gertrude
Vernor, Edna L.
Watkins, E. E.
Wegener, Emma
Whyte, T. C.
Yokom, M. C.
DETROIT

NORTHWESTERN

Alley, Sadie M.
Barlow, Edna
Beaudette, Alice
Black, Isabelle M.
Bovill, R. V.
Brennan, J. V.
Brown, Frances
Burgess, L. G.
Butler, Martha A.
Carey, Eleanor J.
Chamberlain, Katherine
Chapman, Ivan E.
Cline, A. M.
Clough, Susanna
Connely, Mildred M.
Cooper, Elsie E.
Corcoran, Winifred
Covey, Blanche
Crumpton, Claudia E.
DeGalan, Frederick
Doolittle, W. C.
Duffy, Genevieve K.
Elliott, Mary I.
Emmons, Deda L.
Essery, Florence
Evans, Monica
Fox, Vera E.
Fraser, H. F.
Gettemy, Julia
Gilpin, A. R.
Glass, W. N.
Green, Frances M.
Haigh, Margaret
Hill, Florence J.
Holmes, Mary F.
Howes, Mary F.
Hulbert, W. O.
Jerome, M. D.
Jones, A. F.
Keppel, Anna K

Knauss, K. E.
Lindquist, Lily
Liskow, Julia M.
Long, Mabel E.
McNally, J. V.
Maichele, Grace
Merriam, Beatrice
Miller, E. L.
Miller, W. T.
Munro, C. N.
Netzorg, Muriel H.
Newcombe, Rachel
Norris, Nonna
O'Brien, H. A.
Orth, Louise
Peterson, Eleanor
Porter, J. E.
Pryer, Lucile S.
Randall, Ruth
Rauch, Mrs. Edith
Rivett, B. J.
Roehm, Dorothy
Rowe, Winifred A.
Ryman, Rachel S.
St. John, Helen M.
Seaver, Elizabeth
Shattuck, M. E.
Sheehan, Sarah E.
Simpson, Shirley
Smith, Esther
Spence, Charles
Spriegel, Wm. R.
Stevenson, Vernetta
Stine, Adeline A.
Thomas, Jane B.
Tormey, Ella F.
VanderVelde, L. G.
Van Dyke, Karl
Vorys, Hope S.
Waite, Dorothy
Walker, Harriet K.
Walton, W. W.
Wentworth, Wm. H.
Whitney, Ada L.
Williams, E. E.
Wilson, Jean W.
Worden, Orpha E.
Wyman, Alice

DETROIT

NORVELL, JUNIOR
Bronson, L. R.
Roys, H. N.

DETROIT

SOUTHEASTERN
Anderson, Flora L.
Auch, E. F.
Beebe, Faye
Beyer, Adele H.
Bogenrieder, Gertrude
Bogenrieder, Margaret

- Carr, Henrietta
 Converse, Helen
 Copeland, Carrie
 Corns, J. H.
 Cornwell, A. M.
 Cortright, Floy M.
 Creech, May E.
 Currey, Meroe
 Curtis, Erta
 Douglas, Catherine
 Dow, Caroline M.
 Eberbach, Lynda
 Fitzgerald, Alice M.
 Furman, Hazel K.
 Gaines, Muriel R.
 Gardner, Lucy M.
 Grant, J. F.
 Harma, J. C.
 Harvey, Elizabeth B.
 Hazen, L. M.
 Hendrshott, Edna
 Hollaway, Loris
 Jones, G. W.
 Kehoe, Roberta J.
 Kenay, Dena
 MacFarlane, Florence
 McDonald, Helen R.
 McFarland, Janet
 McHugh, D. C.
 Martin, Rose F. M.
 Mason, Elizabeth
 Parmelee, E. Grace
 Panfil, A. C.
 Parks, Anna S.
 Phelps, Nancy S.
 Powers, Ruth
 Quirin, Irene M.
 Renton, Marie H.
 Seath, Margaret
 Simpson, L. H.
 Skinner, C. T.
 Smith, O. S.
 Spafard, Myra B.
 Stowell, Marjorie M.
 Sullivan, Margaret C.
 Sullivan, Mary G.
 Vrooman, Maude
 Walsh, Mary E.
 Whitney, Edward
 Zalewski, B.
- DETROIT UNIVERSITY SCHOOL,
 Fletcher, D. H.
 Fries, N. H.
- DETROIT WESTERN
 Bancroft, Nellie E.
 Blanchard, Joyous
 Bowker, Lucy E.
 Brown, Loretta A.
 Brown, Margaret C.
- Cameron, H. A.
 Coughlan, Nina
 Free, Nellie M.
 Frutig, Marie L.
 Harper, Susan
 Hemsted, Joanna K.
 Hendershott, Pearl
 Hickok, D. W.
 Holmes, E. L.
 Holmes, F. H.
 Kibby, Chas. G.
 McEuen, Hannah J.
 Matthews, J. W.
 Meiser, Augusta B.
 Morse, W. A.
 Parker, Flora E.
 Pitts, Dora
 Porter, E. H.
 Roper, Gertrude
 Seeley, Ruth H.
 Seiffert, Berthold
 Smith, Grace
 Sturm, Alice K.
 Sundstrum, Elizabeth
 Thomas, G. C.
 Turney, Mary E.
 Waples, Marcia
 Warner, W. E.
 Weir, W. W.
 Wilkinson, A. O.
 Wiltsie, Katherine D.
 Woodward, Mabel C.
- DOWAGIAC
 Scott, Florence
- DURAND
 Goudy, W. S.
- EAST JORDAN
 Keyworth, M. R.
- EAST LANSING
 Kimmel, Zella
 Lewis, H. P.
- EATON RAPIDS
 Bathman, Ruth
 Smith, Katherine
 Tefft, Dorothy
- ELKTON
 Miller, H. W.
- FENTON
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JOURNAL

OF THE

Michigan Schoolmasters' Club

FIFTY-FIFTH MEETING

Held in Ann Arbor, April 1, 2, 1920

**ANN ARBOR, MICHIGAN
PUBLISHED BY THE CLUB**



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TABLE OF CONTENTS

	PAGE
Editorial	7
The Democratization of Educational Method..... <i>J. F. Hosic</i>	9
The Place of Latin in the Reorganized Secondary School.. <i>E. L. Miller</i>	14
The Einstein Law of Gravitation..... <i>W. F. Colby</i>	20
The Students' Study Hour..... <i>O. O. Norris</i>	25
Synopsis of Business Meeting.....	33
Program of 1920 Meeting.....	36
List of Members.....	51
Advertisements	61

Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-FIFTH MEETING, HELD AT
ANN ARBOR, APRIL 1, 2, 1920

EDITED BY THE SECRETARY

GENERAL MEETING

The Fifty-Fifth Meeting of the Michigan Schoolmasters' Club was held in University Hall on Thursday and Friday, April 1 and 2, 1920. On Thursday morning there was a joint meeting with the Short-Term State Institute. The first address was to have been given by Dr. Lewis M. Terman, Professor of Education, Leland Stanford, Jr. University, but he was obliged to leave after his Wednesday's address. His place was ably filled by Professor Guy Montrose Whipple, now of the University of Michigan, and his address was along the line to have been followed by Professor Terman, i.e., "Mental Tests."

Superintendent F. B. Spaulding, Cleveland, O., gave an address entitled "Significant Observations on Experiences in Helping to Provide Educational Opportunities for Our American Expeditionary Forces in France and Occupied Territory."

On Thursday evening occurred a joint meeting of the Club and the Faculty of the College of Engineering.

On Friday morning the usual business meeting was held. This was followed by the usual literary program consisting of two addresses. The first by Professor Tenney Frank, Johns Hopkins University, entitled "Labor and Labor Conditions"; the second by Professor James F. Hosis, Chicago Normal College, entitled "The Democratization of Educational Method." Professor Hosis's address is published in this number of the Proceedings. On Friday evening a joint meeting of the Schoolmasters' Club and the Academy of Science was held in the Natural Science building when Dean Eugene Davenport, University of Illinois, spoke upon "The New Day in American Agriculture."

On Thursday and Friday afternoons the Conferences of the Club held their usual meetings, and a gymnastic drill was given in Barbour Gymnas-

ium by the University Girls. On Tuesday night a Complimentary Concert was given in Hill Auditorium to the members of the Club by the Trio de Luetce. The Concert was of very high order and greatly appreciated by the members of the Club. The University Musical Society is hereby extended the thanks of the Club. Two fine exhibits were shown during the week, one at the Alumni building, "Art Work of the Public Schools of Michigan," the other at the University Library, "University Library Extension Service."

The week of the meeting of the Schoolmasters' Club brought to Ann Arbor, as usual, meetings of the Michigan Association of Superintendents and School Boards, Michigan State Federation of Teachers' Clubs, Short-Term State Institute, Michigan Academy of Science, Classical Institute, Special University lectures, Michigan Interscholastic Athletic Association, Michigan Home Economics Association, and the usual reunions, banquets, and receptions.

The meetings were well attended, but on account of the Detroit Teachers being obliged to stay in Detroit on Friday in order to sign their contracts, the attendance was smaller than the year before.

It may be noticed that the size of the Club's Journal is smaller than usual. This is because of the high cost of printing. To keep down the cost and also to raise the standard of the Journal, the Executive Committee decided to limit the number of papers published to the three or four best ones submitted to the Committee. The reason for this plan can be readily seen when it is remembered that according to the old plan each of the sixteen different Conferences would be entitled to two papers, making thirty-two in all.

THE DEMOCRATIZATION OF EDUCATIONAL METHOD

PROFESSOR JAMES FLEMING HOSIC, CHICAGO NORMAL COLLEGE

The pessimists tell us that the impulses to better things that were stirred in the hearts of Americans by the Great War have died away. They say that appeals to the spiritual sense do not meet with the same response now that they did two years ago. I cannot believe that they are right. Certainly educational folk never seemed more vividly conscious of the need and the opportunity of developing higher types of character in our democracy than now. This meeting itself and the topic of the hour give evidence of this.

Now is the time for educational reconstruction. All seem to be agreed upon this proposition. Whether this reconstruction shall really take place or not depends largely upon our establishing a sound point of view. The importance of the point of view is well illustrated in Poe's well-known story, "The Gold Bug." Jupiter, the comic character of the story, climbs a tree in order to drop the Gold Bug through one of the eyes of a skull suspended in the branches. In his superstitious fear, however, Jupiter dropped the Gold Bug through the wrong eye and all the succeeding calculations went wrong. It is ever so. Only by starting in exactly the right direction can the goal be reached.

Now we have had in the history of education some very interesting concepts. One of these may be called the rowing machine theory. This consists essentially in the idea that one may strengthen his mind merely by exercising it. The mind is regarded as like one's limbs, which are supposed to grow stronger through pulling away on a wooden rowing machine in a gymnasium. Doubtless some of those present tried such a machine—once.

A second theory still largely operative in the field of high school and college education may be called the brick kiln theory. One by one the formal additions to one's "education" are piled up so that the proud possessor may point now to his ancient history, now to his Latin, etc. The total result, however, has something of that stiff and unrelated formality pertaining to its units that we find in a brick wall.

A third very pretty theory may be called the rose-garden theory. This notion is based upon the hypothesis that all of the native instincts of children make for righteousness. It is necessary, therefore, only to permit the child to follow his natural bent and all will be well. The objection to this *laissez faire* policy in education is that a large proportion of one's native instincts lead to his destruction rather than to his salvation. They require redirection or extinction.

No one of these popular conceptions, it will be seen at a glance, is adequate to meet our needs. We must find something more fundamental and far-reaching. This needed basic principle is embodied in that form of common life which we call democracy. If education is life, in our case life in America, then it must proceed in accordance with the methods which are employed by democracy itself.

There have been many definitions of democracy. The term is greatly in need of redefinition at the present time, since on every hand there is a tendency to read into the word one's personal predilections and vagaries. Lowell said that democracy is a state of mind. It is a condition of society in which every man has a chance and knows that he has it. He declared that in America no man considers himself any better or any worse than his neighbor because of any artificial distinction. Professor Dewey regards the opportunity to share the common life as the essential feature of democracy. Probably all would agree that participation is characteristic. The question for education, then, is this: In what way can children and youth be most effectively trained for full and responsible participation in all phases of our democratic community life? The answer is plain enough, through experience. This is the only way we human beings have of learning. If one is to be an efficient citizen of democracy, he must practice while young. Hence it is not too much to say that the greatest educational problem of the present hour is how to shape both our theory and our practice in accordance with the democratic ideal. It is not enough to give an occasional lesson in the duties of citizenship nor even to acquaint young people with the heroic struggles for liberty in which our forefathers engaged. The children themselves must freely and intelligently participate in common purposes carried out in accordance with plans which they have helped to form.

What a full and untrammelled experience is may be illustrated by a simple incident in actual life. A boy accustomed to going with his father and older brothers to the wood lot in Illinois when loads of timber were being hauled on the big bob sled to be cut up for summer fire wood, found himself at the age of ten on a timber claim in Nebraska. About one hundred yards from the house was an enormous pile of dried cottonwood windfalls cut into suitable lengths for the kitchen stove. It became his inspiring task to carry in arm loads of this dry wood with which to fill the old copper washboiler back of the stove in the kitchen. Needless to say, he found himself confronted with a "situation," with a problem that needed solution.

Now, being a country boy, he was accustomed to hoe his own row, He did not think then of troubling his father with questions, but set to work upon the basis of his experience to make a sled. He found some timber, the necessary tools, and set to work. Soon the cross pieces were fastened on, the corner posts set up, a rope tied on in front and he was ready to haul his first load across the warm spring earth to the kitchen door. Presently he called out, "Mother, come and see what I have made."

That was a proud moment, seldom equalled in his career. Too often

in the school did the teacher place her hand upon his shoulder, point the way to the next step, give the necessary orders, pass judgment upon the result, and leave to him little or nothing but the execution of the plan, which was not of his devising. In short, the school sought to educate him by means of a partial and incomplete experience, instead of giving him opportunity for full participation.

Modern teachers, however, are beginning to see the light. Not long ago, for example, one such teacher announced to her class, "Children, we have been asked to give a play in the auditorium. What shall we do about it?" They were ready and willing. They selected committees, had a try-out and selected the cast, pushed along with their rehearsals, and under the direction of their self-chosen leader, the most mature young girl in the class, went through with the scenes from *Rip Van Winkle* which they had elected to give. And when it was over a thing happened which is good for democracy but unthinkable in the ordinary recitation. The little orphan who had played the part of Rip was standing by the dressing-room door still clad in his rags and artificial beard. There came up to him a well-dressed, well-cared for little fellow of about his own age. This boy extended his hand and said, "We are proud of you. You did so well." Then he put his arm around Rip's neck and kissed him on the cheek. Consider what that little incident means for democracy. To the well-dressed boy it meant brotherhood. To the other boy it meant appreciation, appreciation in a life all but devoid of love and companionship. Only the future can measure the results of such social contact.

Yet we still find even very good teachers conducting the time-honored formal recitation. For example, one such teacher was found conducting a recitation in geography. The pupils had read Carpenter's *Geographical Reader* and had had an outline, carefully prepared by the teacher, presented to them on the blackboard and had copied it in their notebooks. With the help of this outline they had reviewed the subjects from their texts. On the day when the visitor happened in they were reciting glibly on the various topics called for by the outline, but when they were asked what they were seeking to accomplish, not one could tell. No purpose for the work had been developed, no plan had been discussed with the pupils. They were simply under orders. *Simon says thumbs up, Simon says thumbs down, and on examination day, and quickly, wiggle waggle.*

By contrast, another teacher of the same subject was found introducing the subject of lumbering by means of reference to actual experience. She told how the mending of two steps of the porch at home had cost \$5.00. The apologetic carpenter explained that "nowadays you can carry away \$10.00 worth of lumber from the yard under your arm." The teacher wanted to know about lumber, where it comes from, why it should cost so much now, etc. The result was a discussion by the pupils of the topics. "What Do We Wish to Know About Lumber?" "How Can We Find Out?" The plan was made in the form of an outline worked out by the

children and written by the teacher on the board. Succeeding days brought contributions of all sorts, including pictures, drawings, polished wood, and what not. Then came the new problem, how much of what we have had do we wish to remember? Again the class and the teacher developed an outline together. The children themselves were able to judge whether they could tell clearly all that needed to be told on each topic.

The difference between these two lessons in geography is very great. In the former the children may have accumulated a few verbal facts which they could remember until examination day and that was all. In the other, permanent interests were aroused, methods of work developed. Each had his unique opportunity. There was practice in organization, practice in judging the outcome. There was, in a word, an all-round experience in which each had the fullest opportunity to participate. If we ask, What should the children be learning, we shall find the answer in the second example rather than in the first. Those who learn to like geography and learn how to follow up problems, will soon need no teacher. They will accumulate geography the rest of their lives.

And so it is in all studies. We should prize not the small amount of formal knowledge which the studies provide. Indeed, judged by such standards, our schools are utter failures. The amount of definite accurate knowledge which children retain from their recitations for permanent use is distressingly small. Such knowledge is, however, rather a means to an end than an end in itself. What we want is growth. This takes the form not only of knowledge, but also of skill and of attitude of mind, that is to say, interests and ideals. The latter are by all odds most important.

In the examples of actual schoolwork we have been considering we may find certain principles of method that are of universal application. These may be summed up as follows: Education is merely a process of growth through experience. Genuine experience, whether direct or indirect, involves "wholehearted purposeful activity," with results judged by the actor as good or poor in the light of the object to be attained. According as the judgment is favorable or otherwise the feeling of appreciation accompanies. Experience, then, involves purposing, planning, carrying out, judging results, and having feelings of value. In so far as schoolwork at any time or in any place inhibits the free play of any of these elements, it is a cramped and inadequate process.

The best teachers, it is true, have always more or less consciously obeyed these principles. It cannot be said, however, that they have been operative in anything like the majority of classrooms of America. For the most part they have been characteristic features of the teachings of certain educational philosophers rather than of the technique of the ordinary instructor. The task before us is that of developing an effective technique of classroom instruction based upon these principles. Even when this technique is thoroughly in hand there will still remain the problem of making it a tradition or common practice in our schools.

No one is disposed to minimize the difficulty of this undertaking. Formal instruction is the easiest of all instruction to give. The university lecture is a shining example of this fact; so is the ordinary question and answer upon the text in the high school and elementary school. Democratic method requires intelligent sympathy, command of subject matter, and a certain versatility on the part of the teacher. He must play many roles. He must be foil, coach, leader, director, listener, chief performer, policeman, adviser, friend, and companion. He must know how to remain in the picture without completely dominating it.

Some profess to find the necessary features of democratic method in the so-called socialized recitation. The difficulty is, of course, that all good recitations are socialized. To identify socialization with the absence of the teacher from the platform is deplorably short-sighted. As a matter of fact, replacing a good teacher with a poor one often results in the very opposite of the "socialization" desired. Socialization consists essentially in three conditions: First, common aims; second, the spirit of cooperation; third, division of labor. Where these are present and functioning the external form employed is of little consequence.

Wherever democracy is found at work, be it in industry, in politics, in recreation, or in education, these fundamental principles of human association will be evident. Ford found them necessary in order to achieve the highest success in the making of motor cars. The sociological expert whom he called to his assistance when ordinary engineers had failed sums up his methods in these words: "All the men had to learn just what was to be done; they had to learn just how to do it; and, above all, they had to have the *will* to do it."

The will to do it!—This is the cardinal principle of democratic life and democratic method. It grows out of consciousness of a worthy aim and of the power to achieve that aim. It put two million American boys in France in an incredibly short space of time in order to make the world safe for democracy. It is the determining factor in the wonderful success which Americans have achieved. It is the touchstone for the future. It must become the prime force in an educational method that harmonizes in every respect with the ideals of our country. The method of democracy is the method for the schools.

THE PLACE OF LATIN IN THE REORGANIZED SECONDARY SCHOOL

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By the reorganized secondary school I understand the secondary school as Mr. Clarence Kingsley's Commission on the Reorganization of Secondary Education conceive it. For the purpose of this discussion I therefore assume that the objectives of secondary education are seven in number, as set forth by the commission: (1) Health; (2) Fundamental processes; (3) Worthy home membership; (4) Citizenship; (5) Vocation; (6) Worthy use of leisure; (7) Ethics. If we grant that these objectives embrace the truth, the whole truth, and nothing but the truth, is there any place left in the secondary school for the study of Latin?

To this question I reply with two "Ifs". If the Latin course remains unreformed, its value in view of these objectives is considerable. If it can be revised to meet the objectives, its position will be decidedly strengthened. I propose therefore to outline (I have no time to discuss) what I conceive to be the status of Latin teaching at the present time, its possibilities, and the changes that must be made before it will attain the place to which it is entitled.

Among the faults which exist today in the teaching of Latin are:

1. It is dull.
2. Latin teachers assume that it has an impregnable place in the curriculum and hence do not sell it to their pupils.
3. Latin teachers assume that there is something mysterious in making it so dry and distasteful that half their pupils quit the subject in disgust as soon as they have a chance.
4. The course of study may be well organized for the supra-normal pupils who constituted the high school population 30 years ago but is absurd today. We should jeer and have a right to jeer at an English course that consisted of a year of grammar, a year of Grant's Memoirs, a year of Burke's Speeches, and a year of Paradise Lost. Burke's Speech on Conciliation is considered too hard for pupils in Grade XII by many teachers of English, yet we persist in reading Cicero's speeches, which are equally difficult in thought, and reading them in Grade XI in a language which is at once ancient and foreign. As for Paradise Lost it has been banished for years from our high schools because it does not fit into adolescent interests. Why cannot Latin teachers imitate English teachers, form a National

Council of Teachers of Latin, hold yearly conventions, and find fit matter for their pupils to read? Is it because there is no fit matter? Is it because Latin teachers cannot translate any Latin except what they have studied in the teachers' courses in college? Why insist that we must read only Latin of the Augustan age? Would it not be equally sensible to decree that we must read no English except that which was written between 1600 and 1700?

5. The writing of Latin prose is a fetish to the teachers and a nightmare to the children. Its purposes, in my opinion, can be attained equally well by memorizing passages of good Latin and by writing real compositions—compositions in which pupils try to express their own ideas instead of merely rewriting in barbarous Latin sentences which Cicero and Caesar wrote 2,000 years ago in perfectly good Latin.

6. Too much time is spent in teaching the quantity of vowels. This is defended on the ground that anything that is worth doing at all is worth doing well. A similiar attitude of mind on the part of New England manufacturers has caused Michigan to become the centre of the automobile industry. They had the polish but the punch was here, and now they have neither. Nero fiddled while Rome burned, and our quantitative friends might profit by his fate.

These are the chief faults of Latin teaching today. In spite of them, it is an immensely valuable study. If they can be eradicated, its place in the reorganized high school will be secure. Why it will be secure I shall attempt briefly to indicate by pointing out how the study of Latin may be made to contribute to each of the seven objectives of secondary education.

Of direct education in health, probably not much can be derived from Latin. Yet the Romans cultivated the *mens sana in corpore sano* and were wise in their health maxims if not in their practices. Virgil warns us against too much physic when he says *Aegrescitque medendo*. Cicero, in this sentence, preaches a comforting sermon to the sick, "*Aegroto, dum anima est, spes esse dicitur*." "*Non est vivere, sed valere, vita*", wrote the alliterative Martial. Latin letters ended more sensibly than ours with "*Cura ut valeas*". The old Latin proverb, "*Esurienti ne occurras*", if remembered, may save one's skin at a critical moment, and there is something extremely modern and, rightly understood, wholesome enough in the maxim, "*Dum vivimus, vivamus*." Most of our health words are Latin: *sanitary*, for instance, and *medical*. Why not organize our Latin in the high school so that the pupils will get some of these Roman health ideas?

The fundamental processes are readin', writin', and 'rithmetic; that is, language and mathematics. Latin's best justification perhaps lies in the fact that, in studying Latin, the pupil is studying English. The Latin teacher must himself remember and make his pupils understand that Latin is an integral part of English. Probably the best way to do this is historically. He who knows how the Christian religion, the Norman splendor,

the intellectual wealth of the Renaissance, were all carried over into English by Latin and carried with them a vast vocabulary will not undervalue the study of the subject as an aid to English. Nor should the teacher fail to make clear to the pupil the fact that these processes are still going on and that not less than 75 per cent. of our words today are of Latin origin. He who does not know Latin does not and cannot know English. This one phase of the subject is, however, too vast for discussion here. I can only point out concretely a few of the considerations which lead me to believe that the study of Latin is the study of English:

1. It gives an insight into the structure of language.
2. It develops the ability to use the vernacular with precision.
3. Language is not only a tool for the transmission of thought but also for thinking itself. The Latin language, because of its logical structure, offers a particularly effective means of realizing this aim.
4. By studying Latin pupils learn to recognize and to use persons, numbers, tenses, voices, moods, cases with a precision that the study of English grammar never gives.
5. The study of Latin makes clear the origin, form, and meaning of English words. It gives the pupil an idea of the dignity of language. It shows him that many English words, instead of being arbitrary symbols, came into being in response to human need. Such a phenomenon is seen in *pes* and its derivatives, pedal, pedestal, pedestrian, expedient, expedite, expedition, impede. Latin helps in spelling English words. Of these formulae, accident, adhesion, discipline, dissect, divide, convalesce, separate, and accommodate are types. Latin illuminate the meanings of English words, rendering dictionaries less needful. Essence, procrastinate, torture, trite, digest, infant, decimal, fraction, integer, peninsular, and molecule are good examples of this. Latin aids in discrimination between English synonyms. Who that does not know Latin has a feeling for terrible, tremendous, immaculate, egregious, fine, and splendid?

The Romans themselves had some ideas about the teaching of the vernacular which are still worth attention. Of these I mention only one, "*Corrumpunt bonos mores colloquia mala*," which is a good motto for our campaign in behalf of better speech.

One of the most engaging aspects of Latin study, the home life of the Romans, is now almost entirely neglected. Their ideals and observations are often strangely modern. It seems as if a way might be found to incorporate some of this into our high school teaching. Did they have cats and dogs? They carved "*Cave canem*" on their thresholds and said of the one, "*Catus amat pisces sed non vult tingere plantas*," and of the other, "*Canis timidus vehementius latrat quam mordet*" Plautus admired mice. At least he said:

*"Cogitato mus pusillus quàm sit sapiens bestia,
Aetatem qui uni cubilli numquam committit suam."*

They deprecated needless argument—"*De gustibus non est disputandum.*" They knew the value of promptness—"*Carpe diem*"—and no less the value of delay—"*Festina lente.*" They hated misers—"*Avarus, nisi cum moritur, nil recte facit*"; but they valued thrift, even if they did not practice it. Cato said:

*"Emas, non quod opus est, sed quod necesse est:
Quod non necesse est asse carum est,"*

and Cicero exclaimed: "*O dii mortales! Non intelligunt homines quam magnum vectigai sit parsimonia.*" Plautus's advice to stenographers is just as good today as it was 2 000 years ago—"*Mulier recte olet ubi nihil olet.*" What is prettier than the lines in which Catullus offers comfort to Lesbia for the loss of her sparrow?

*"Lugete o Veneres Cupidinesque
Et quantum est hominum venustiorum!
Passer mortuus est meae puellae,
Quam plus illa oculis amabat."*

And what is saner than Horace's love of the country?

*"Beatus ille qui, procul negotiis,
Ut prisca gens mortalium,
Paterna rura bobus exercet suis
Solutus omni foenera."*

They laughed at the sick man who suddenly grew virtuous:

*"Daemon languebat; momachus tunc esse volebat,
Daemon convaleuit; daemon ut ante fuit."*

Like us, they put up with the faults of their friends for the sake of their virtues. At least Martial said:

*"Difficilis, facilis, iucundus, acerbus es idem,
Nec tecum possum vivere, nec sine te."*

Probably no subject contains more of the real metal of citizenship than Latin. Yet it is a mine practically unworked. From Livy, Tacitus, Cicero, Pliny, Horace, Virgil, and the Latin Vulgate can be dug a mass of social and political wisdom that is a good deal more up to date than most of the stuff that will be printed as such day after tomorrow in those crimes against our forests which are known as the Sunday papers. "*Bellum nec timendum nec provocandum*" is a good motto for a republic. "*Corruptissima in republica plurimae leges*" is a better one. Nothing could be more to the point at this minute than Horace's stanza:

*"Justum et tenacem propositi virum,
Non civium ardor prava jubentium,
Non vultus instantis tyranni
Mente quatit solida."*

Even the Germans steal most of their clever ideas from the Romans. The slogan with which they defaced a ruined village in Belgium, "*Nicht ärgern; nur wundern,*" is nothing under the sun but Vergil's "*Non equidem invideo; miror magis.*"

As a vocational subject Latin is of immense value. It is necessary for law, medicine, pharmacy, dentistry, the engineer, the clergyman. It is valuable to the stenographer but more so to her employer. It is equally indispensable to the teachers of French, Spanish, and Italian. To the teacher of English it is a *sine qua non*. The wisdom of these maxims and a host of others is of practical use every day, even in the school room: "*Accusare se debet memo*"; "*Allegans contraria non est audiendus*"; "*Cui prodest scelus, is fecit*"; "*Nihil perfectum est dum aliquid restat agendum.*"

The value of a study of Latin as an aid to the worthy use of leisure is obvious. Key as it is to some of the greatest minds of all times, it is also the key to much that is best in English, French, Spanish, and Italian literature. Some of its lighter aspects are highly attractive. Ennius' ambiguous line,

"Aio te, Oeacida, Romanos vincere posse";

the medieval palindrome,

"Signa te, signa; temere me tangis et angis";

and the modern inscription for Franklin's statue,

"Eripuit fulmen caelo sceptrumque tyrannis,"

are illustrations of the hidden, attractive, and unused wealth that awaits the teacher. Why not read Tacitus's account of the Christians, Seneca's prophecy of the discovery of America, the *Animula vagula blandula*, the *Dies Irae*, one or two scenes from Plautus and Terence, one or two poems of Catullus, several of Horace's odes, the *Gaudeamus Igitur*, and Prof. Gayley's *Gloria Victoria*? And the Latin teacher should remember and teach with Seneca that *Otium sine literis mors est*. Nor must one forget Thackeray's lovely Latin lyric about Ivanhoe in Rebecca and Rowena.

*"Hic est Guilfridus, belli dum vixit avidus;
Cum gladio et lancea, Normannia et quoque Francia
Verbera dura dabat; per Turcos multum equitabat;
Guilbertum occidit, atque Hierosolyma vidit.
Heu! nunc sub fossa sunt tanti militis ossa.
Uxor Athelstani est conjux castissima Thani."*

Latin also affords a vast field for the study of ethics. I have time to jot down only one or two bits of wisdom that appear to me to be good for adolescents as well as their elders.

1. *Abeunt studia in mores.*
2. *Diem perdidit.*
3. *Fit erranti medicina confessio.*
4. *Disce aut discede.*
5. *Differ; habent parvae commoda magna morae.*
6. *Ad paenitendum properat, cito qui judicat.*
7. *Absentem qui rodit amicum,
Qui non defendit alio culpante, solutos
Qui captat risus hominum famamque dicacis,
Fingere qui non visa potest, commissa tacere
Qui nequit, hic niger est; hunc tu, Romane, caveto.*
9. *Aequam memento rebus in arduis
Servare mentem, non secus in bonis
Ab insolenti temperatam laetitia.*
10. *Cras te victurum cras dicis, Postume, semper,
Dic mihi cras istud, Postume, quando venit?*
11. *Cujusvis hominis est errare; nullius, nisi insipientis,
in errore persevere.*

Indeed, it is amazing to think that a nation without automobiles, telephones, corn on the cob, griddle cakes, or tobacco, 2,000 years ago, could have thought much straighter than many of our own dear I. W. W.'s, loafers, liars, pedagogues, knockers, demagogues, and procrastinators.

Here I must pause. As you have doubtless perceived, I have given you only a series of hasty notes. More my daily tasks have not allowed. I hope that you will pardon their insufficiency. Whether you do or not is, however, of little moment. The important thing is for us, as Latin teachers, to think seriously of these questions that are demanding answers from us, for their right solution is important to us and to our nation.

EINSTEIN'S GRAVITATIONAL THEORY

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It is hardly possible to state the Einstein Law of Gravitation in an intelligible manner, and certainly not possible to explain its apparently arbitrary consequences without starting farther back in the general subject of Relativity in which it had its origin, and to which Einstein has contributed so much. Relativity has had as its chief problem the stating of laws of nature, the recording of observations in a more general manner, the stating of the sequence of events in a form which is not dependent on the circumstances in which the observer finds himself. The paradoxes which brought this subject into existence are fairly familiar. The classic case which is now hackneyed, but will never lose its interest is the experiment of Michelson and Morley. This experiment consisted in setting up two arms of equal length at right angles, provided at their ends with mirrors which reflected light arriving from their point of intersection. An interference method allowed the observer to detect changes of optical distance to a fraction of a wave length. It was hoped to be able to measure the difference in time required to twice traverse the arms when one was in the direction of the motion of the earth, and the other at right angles to it. We will call the intersection of the arms O, the east extremity A and the north extremity B, the length of arm a. As the light starts from O to A the mirror recedes and the time required to reach A is $a/(c-v)$ where v is the velocity of the earth, and c is the velocity of light. For the return trip, O is approaching and the time is $a/(c+v)$. Adding, $t = a/(c+v) + a/(c-v) = 2ac/(c^2-v^2)$.

For the transverse arm, B is advancing and the oblique velocity c has a transverse component $\sqrt{c^2-v^2}$. The double trip thus requires $2a/\sqrt{c^2-v^2}$. The east and west trip has thus required more time by the factor $c/\sqrt{c^2-v^2} (>1)$. Such difference for the earth would cause a displacement of interference fringes many times the limiting displacement detectable. No displacement was detected. Many parallel experiments were carried out, many explanations were offered, but none has stood the test except the one which at first statement sounds most fantastic, viz., that a length can be described in a multitude of ways depending on the relative state of the observer. In the above experiment we were taking as our frame of reference a stationary ether, i.e., one relative to which the earth has a rotation as above described. A length which measured a when at rest relative to this framework, is, when in motion relative to it, shortened

in the direction of that motion by the factor $\frac{\sqrt{c^2-v^2}}{c}$. Moreover, we

can never hope to detect whether or not our particular framework has *absolute* motion or not, in fact absolute motion is for us a term without meaning. To say, therefore, that a measuring stick has a certain length is an utterly vague statement. One must say that it has a certain length to an observer to whom it is relatively at rest. For all other observers it is shorter than that by the factor above. It is easy to see that such a broad statement is a severe blow to our old mechanical ether theory. A hypothetical medium through which light was propagated formed just such an absolute framework for measuring relative velocities of which we have denied the existence. There is an element of reciprocity here also which we cannot overlook. If to me on the earth an airplane is shortened in the direction of its motion, I must admit that to the observer in the airplane objects on the earth are shortened by the same factor. In our old manner of thinking we were able to proceed as follows:

Suppose the observer on the earth sets up an x, y, z coördinate system and the observer in the airplane and x^1, y^1, z^1 system. Then a point described as x^1, y^1, z^1 by the latter will be translated into x, y, z by the former by saying $x^1=x-vt, y^1=y, z^1=z$. We now see that this is false and must be modified to $x^1=b(x-vt^1), y^1=y^1, z^1=z^1$. Similarly the airplane observer must say $x=b(x^1+vt^1), y=y^1, z=z^1$. If we solve for t and t^1 we find

$$t=B\left[t^1+\frac{vx^1}{c^2}\right], \quad t^1=B\left[t-\frac{vx}{c^2}\right]$$

t may thus be greater or less than t^1 according to the sign of v . Two events may be simultaneous or have either sequence to observers with different velocities.

To show this more clearly assume a point O from which is sent a signal. A sphere about it would indicate points which have received this signal simultaneously. Let two such points be A and B . For an observer at rest in this system we now say the events of receiving the signal are simultaneous. Suppose, however, the observer to be in motion and that we replace this by setting O, A , and B in motion in the opposite direction. By the time the signal has arrived on the sphere just described, A and B will no longer be there; one has already received it and the other will not receive it till later. To this moving observer the events are therefore not simultaneous, but have a definite sequence. Not only must we alter our notions of intrinsic length but also of intrinsic time. Sooner or later are as vague terms as longer and shorter. Our notion of time and space are inseparably connected and must always be described together.

It is in fact in the light of this unity that Minkowski made his now indispensable statement of these results. If we set up a four dimensional space with the coordinates x, y, z, t , it is possible for us to trace a curve in this space to represent the history of any entity we may choose to consider.

We can represent such a model through its projections on any two or three dimensional space. Suppose we choose x, t ; to correlate units we shall assume $c = 1$, or plot ct . A body at rest projects as a line parallel to the t axis, one moving with constant velocity as an oblique line. In general, we may hope to trace a curve for any case. We may easily see that any physical observation is an intersection of two such world lines, e.g., the collision of 2 masses, the coincidence of a reflected beam of light with a scale division or with the retina of the eye. Moreover, as we move along the world line of an entity the sequence of events is necessarily a fixed one. In fact, we may easily show that for the transformation of coordinates shown above, the quantity $(s^2 - s^1)^2 = (x^2 - x^1)^2 + (y^2 - y^1)^2 + (z^2 - z^1)^2 - (t^2 - t^1)^2$ is invariant. The elegance of Minkowski's representation is occasioned by plotting x, y, z, t where $t = ct\sqrt{-1}$. Whereby the above ds becomes the distance between two points, and the previous transformation becomes equivalent to a rotation of axes through an imaginary angle Θ where $(v = i c \tan \Theta)$. It is not possible to overestimate this representation as a tool for work in this field. We are able thus to picture events as they exist to an observer having any velocity relative to them. We see that there are certain properties common to all observers (as the invariance of ds) even though the corresponding values of dx and dt be widely variant. We see, too, that there is no meaning to the statement that one orientation is a truer description than any other, that a projection of ds on the time axis may have a group of values with equal validity. This value ds has an important interpretation, viz., setting $dx = dy = dz = 0$, $ds = dt$. It is a measure, therefore, of the time interval for an observer at rest with the events, the *local* time.

So far for observers having a uniform relative velocity. What may we expect this world space to yield if the observer be accelerated. Let us, for example, consider that we are observing a body experiencing a constant acceleration. We have already noticed the world line of a body not under the action of a force to be a straight line. Clearly that will no longer be true if the body move as just suggested in a force field. If the acceleration be constant, i.e., if the force field be homogeneous, a projection on the x, t plane yields a parabola, in general a curved world line. If, however, the observer be caused to share this acceleration, and this again we may look upon as a transformation of coordinates (now of a more general sort), the body appears to be at rest or possibly to have a uniform velocity. We have straightened the curved world line, we have transformed away the force field. Suppose the observer to be in a freely falling or rising projectile and that he gives (within the projectile) an upward velocity to a ball. To him the ball moves upward with a constant velocity. To him the ball moves equal distances in equal times while to an observer outside this is not true. Space and time have to him a new metrical relation. For him we must distort our world space by new relations, between time and space so that the world line curved to the man outside is to him straight.

One such transformation as this is already so familiar to us that we rarely think of it, viz., for the rotating body. To one observing from without it is necessary to supply to the rotating system what we call centrifugal force. We say, *supply*, for to an observer sharing this rotation no such force exists. To him other parts of his system are at rest or moving according to familiar laws without this force. We have transformed it in by standing outside or transformed it out by rotating with the system. Which is true we may not be able to discover. One thing is certain that to identify these cases with a transformation of coordinates the acceleration must be common to all entities which we observe. All matter must share it regardless of its nature. Even a beam of light must be subjected to such a transformation. This is clearly true for centrifugal force. If a beam of light is traversing a straight line to the outside observer, its path is curved to the rotator. He can account for this only by asserting that light shares the acceleration which he has attributed to all material objects outside. We are now ready for the celebrated equivalence hypothesis of Einstein in which he states that it is always possible to replace the gravitational field due to any distribution of matter by a suitable transformation of coordinates x, y, z, t . In our four dimensional space an element of line is given by $ds^2 = dx^2 + dy^2 + dz^2 + dt^2$. A general linear transformation $x_1 = a_{11}x + a_{12}y + a_{13}z + a_{14}t$, etc. would yield $ds^2 = g_{11} dx_1^2 + g_{22} dy_1^2 + \dots + g_{12} dx_1 dy_1 + g_{13} dx_1 dz_1 + \dots$ in all, ten terms and ten constant coefficients. These constants contain the properties of the force field, they are components of a generalized potential. Einstein's task was to determine necessary conditions among these ten g 's in order that they should fulfill the requirements of the gravitational problem (covariance) and degenerate to the Newtonian statement $\Delta^2 \phi = 0 = \Delta^2 g^{14}$ for the first approximation. He has stated this result as a group of ten differential equations, which for certain special cases admit solution. Mass enters as an integration constant. Chief among these solutions is that for a mass particle, a spherical symmetry, and the tests for verification of the result with experimental evidence are already in the Sunday papers. We may state that the equivalence transformation here requires, as expressed in spherical coordinate, a radial contraction. We measure radial distances too short and time too long. The circumference of a circle is not $2\pi r$. Applied to orbital motion, the stationary Kepler ellipse must have an advancing perihelion. Here is of course the first startling success of the new law. We have already foreseen that a ray of light must be deviated. Here the application of the Einstein law yields about double the deviation which we would get by applying the old Newtonian statement to the electromagnetic mass of the beam. We all are familiar with the results of the observations of the last eclipse in which displacements of stars near the limb of the sun were measured. The difficulties of such observations do not allow from this one occasion a decisive verdict. We may only say that the most fortunate observers, the English group, favor the new theory. A displacement was positively de-

tected, the uncertainty is in its magnitude. Another important test is the change of period of vibration of light emitters in the sun's photosphere. Here we should expect the solar lines to be displaced to the red in comparison with laboratory lines for the same material. St. John of Mt. Wilson has long contended with Julius of Holland apropos of another phenomenon that such a displacement does not exist. These displacements are difficult to determine and much work must still be done before the matter is settled.

It is doubtless only gradually that we can realize all the consequences of this new postulate. We must first accustom ourselves to these new concepts of space and time and their distortions. It will be noticed that Einstein has never entered into an explanation of the *cause* of gravitation. He has only given us a new point of view which must stand or fall with evidence. He has stated the law of gravitation in a general manner for which the Newtonian statement is a first approximation.

THE STUDENTS' STUDY HOUR

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I.

The problem of the students' study hour and of the study-room supervisor appear on the surface as perhaps nine parts policing and one part teaching. These problems are in the last analysis created by the failures of the classroom teacher. They are problems left over from inefficient teaching, testing, and assignment in the class room. They are fundamentally problems of interest and problems of attack, caused by the classroom teacher's failure to induce a compelling attentiveness on the part of his pupils. This is in part his failure to give his pupils a chance to recite in a straightforward manner upon the essential problems of their lesson and his failure to make his pupils' study problems so definite as to point the way of attack upon them; but still more is it his failure to keep them imbued with an assurance that their school problems bear a direct relationship to the general process of human living. In other words, assuming a proper sifting of our pupils for the work they are undertaking, we should discern that all our problems of teaching and discipline are in final analysis problems of attentiveness—partly problems of securing the interested attention of our pupils to their work, but chiefly problems of the teacher's own attentiveness throughout all the processes of his endeavor.

The nature of the problems thus left to the study hour makes the real problem of the study-room supervisor a problem of teaching. In like manner it makes the chief labor of the teacher-supervisor, in whatever official capacity, a problem of teaching teachers how to teach, in order to mitigate and finally remove altogether the policing problems of the study room and the study hour. I might assume that these unnecessary problems, like the poor, will be always with us and thus devote my attention to merely scratching the surface of the real problem. I prefer to go to the root of the matter and treat the problem at its source, in the hope that at the same time I may show the way of solving those incidental policing problems that in the meantime will continue to thrust their ugly heads above the surface of the legitimate study-room activities. For the things of which I have complained are not primarily the fault of the teacher, but of the times in which we live, and of our failure to recognize and make righteous war upon them with righteous objects in view. Thus early I am indicating that our educational

process in its broadest and deepest sense must be based upon a far different foundation and be directed by reference to a far different ideal from those at present observed throughout the whole range of our educational endeavors. What I conceive this foundation and this ideal to be will appear incidentally, but clearly, in the course of my argument.

II.

Granted a teacher's knowledge of subject content, his teaching problem has two great aspects—that of making his subject interesting to his pupils, and that of teaching his pupils how to attack the problems presented by the subject. These two aspects I shall discuss in order, and somewhat in detail.

The problem of attentiveness itself we may consider under two aspects: the larger and the narrower field of attention, the racial and the personal field, the philosophic and the practical field.

The normal-minded pupil comes to his new teacher and his new subject already hazily attentive to an indefinitely conceived prospect, and ready to be taught. If a sufficient degree of positive attentiveness can be induced, he can be taught anything within the range of his comprehension. But how can a teacher interest his pupils in a subject in which he himself is not interested? And how can any subject be persistently interesting, except in the light of a supposedly integral relationship to the world in which we live—or, more exactly, in a supposedly vital relationship to the processes of our own living in our world? And here I mean not merely the living of of our own individual lives in some chosen social stratum, striving to attain to supposedly higher strata and seeking to keep ourselves uncontaminated from contact with supposedly lower and humbler strata. Nor do I mean merely the playing our part in a narrowly national life, in a selfish, cantankerous relationship to the life of other nations. I mean that our primary care should be by culture, as it is by nature, a care for the success of the species life, and only secondarily a care for where our lives shall be cast in the narrowly national life and in the larger species life, save that through participation in our various institutional activities we shall yield to the species welfare our chiefest capacity for intelligent service. The most vital task of the teacher is to get his pupils interested in the world in which their lives are cast as members of a species spontaneously and hitherto unconsciously seeking continuity of life; but to do this the teacher must himself have an interesting world—a scientifically grounded philosophy that represents the world as inherently a vital, engaging place in which to live, a world whose essential problems are really problems of living, for both species and individual, and for the species through its individuals.

My first contention is that, from the very nature of the service that he is supposed to render to the race (when this is clearly discerned), the teacher, from kindergarten to university, should have had a grounding in philosophical thinking, down to the latest moment—not the dead institu-

tionalized philosophy presented to us in traditional theology, but a philosophy embodying the new knowledge of matter, for the inorganic side of our world, and embodying a straightforward, unequivocal, evolutionary view of our organic world, including our own history and nature.

If this is too strong a medicine for the teaching profession as it is today constituted, that fact only points to the need of a more stalwart generation and line of teachers, who will be able to stand it for the sake of the better race that it is our business to produce. And if it seems a far cry from the immediate problems of the students' study hour to this contention for a more dynamic philosophy of life and of the world as a whole, the appearance can only be the result of a current superficial view of our place and work as teachers in the great process of achieving human continuity. For education is not primarily a matter of training our young to make money, or to make a living, or to perpetuate our altogether inadequate institutions. It is a process of fitting the young intelligently to play their proper and distinctive parts in a process that will supposedly mean a continued life for the race as a whole, and in a culture that will supposedly support this fundamental effort. It is a process of training them to keep our present institutions continuously bent to the service of the species life, or else to clear them off the face of the earth to make room for better ones.

The fundamental business of the teacher is to interest his pupils in their world—in the work of the race to continue its existence world without end, in the work of the race so to integrate its own life processes with the processes of the world in which it lives that it may achieve continuity of life. The world and its processes, the race and its problems, and the task of conceiving these processes and these problems the teacher can make interesting to his pupils only if he himself has conceived them and found them interesting; and our knowledge of the world, including ourselves, is already far enough advanced so that we need not exaggerate or romanticise it a bit in order to make it superlatively interesting to our pupils.

The heart of this contention is the assurance that the world of our knowledge is not an agglomeration of dead things and events, but a world of processes, of which things and events are only the perceptible manifestations. The world is a world of process—the world and all that is therein. Its very existence and continuity are supported by its processal character. Astronomy presents us with a history of process—the process by which our universe in the large has come to be what it is. Geology is a history of process—the process by which our planet has become what it is. Geography is a history of process—the process by which different terrestrial areas have become more or less suited for the habitation of man and for the satisfaction of the needs and wants incident to the perpetuation of human life upon earth through a culture on our part to be ever adapted to that service. Mathematics is the accumulated sum of mental processes by which man has learned to take quantitative stock of time and space and of the various factors that enter into his vital processes. What we call

history is itself a history of process—of the several threads of process by which local groups of the race here and there have more or less fortuitously succeeded in saving themselves from self-annihilation and mutual extinction. The chief function of the teaching of history is to present the young with a record of human error—of man's groping and rushing after wrong ideals, wrong gods, gods of any kind rather than that kind of Good which would mean presumably and purposively a continued life of the race itself. The real content of history, save the history of scientific effort, is the story of human error. Acquisition of the truth is not to be found in it, nor should we look to it for any save a negative guidance for the solution of the social, political, economic, and educational problems that confront us. It is high time to get out of the rut of worshipping the past, with its nearsightedly fallible leaders and its only partially serviceable achievements, and to address ourselves to a conception and consequent solution of the problems that confront us as members of a species whose real business is to live by improving the integration of the processes that make up its life effort.

There can be no question that this processal conception of the world in its every aspect will make it more interesting to our pupils and will stimulate them to a more intense desire to know about it and about all the problems of life that it presents. For it is an approach towards presenting in conceptual form the world of reality to which the race, through its individuals, must get itself continuously readjusted, in ever better form and spirit, for the sake of its own continuity. Such a conception of the world makes possible the perception of a real relationship between all the significant processes of individual life and those of the larger world, and thus makes all life more interesting. Moreover, just because it is so faithful to reality, it is the only valid basis for a scientifically philosophic ethics and religion. And there is no age so tender to which this view cannot be presented in a properly diluted form, so that it will assure persistence of wonder and attentiveness, and a true basis for living, not only throughout the entire school period, but in fact throughout the whole threescore or four-score years of life.

This may put the teacher in the position of often having to admit a lack of definite knowledge; but no one ought to be more ready, out of his own sweep of the entire field of ever increasing knowledge, to say, "I don't know." The common pedantic, pedagoguish inability to admit to one's pupils a limit of his knowledge is not only a lie itself, but it is a crime against the young, and still more against posterity. It is a part of the general and vicious conspiracy of the past to dominate both present and future, whereas present and future should be dominated only by the best ideals that can be conceived, in each succeeding generation, of an ever new and better civilization yet to be realized in the interest of race continuity. Let our class-room teachers everywhere but hold up such a view of the world before their own and their pupils' eyes, and then see whether class-room

tasks and class-room problems will be the dull, leaden, resented bore that at present drives our pupils to anarchy and our session-room supervisors all but to drink and despair.

III

The problems of the narrower field of attention I can dismiss more briefly. These are problems of the pupil's own personal relation to the present and future of his race, through his political, religious, economic, industrial, social, educational, and institutional agencies; problems of his school curriculum, of the several subjects of the curriculum, and of the several problems presented in each subject. They are problems of making the individual's training and life a wholly practical concern in the interest of the race. For not a lesson, a subject of study, a curriculum, a school system, a social, industrial, economic, religious, or political institution can justify itself in our national and species life, save on the basis of a supposedly positive participation in the species life, through affording a culture that will support and forward the species process. It is the pupil's relationship to the species life through all these more immediate and more tangible relationships that should constitute the narrower, practical field of his attention.

All this means that the objects of the pupil's thinking and study endeavors are properly not merely facts—objects, persons, and events—, but relationships as well, and even more definitely so, were it not for the fact that relationships cannot be definitely and accurately perceived unless the related facts themselves are accurately apprehended. Meaning itself is an apprehension of relationships, and is true or not according as the knowledge of the related terms is accurate or not. And this is exactly where interest comes in. For interest is not merely a matter of attention, possibly secured and held by three-ring-circus methods. In fact, interest is an entirely different mental process from attention, though attention is necessary to interest, and interest is necessary to voluntarily sustained positive attention.

Interest, as Professor Harvey has ably shown, is a feeling, sometimes painful and sometimes pleasurable in tone. But certainly most of the interest that has proper place in our schools is pleasurable. Now it is a commonplace to think of feeling as a motive, a driving agency, whence the word *emotion* came to be coined as a name for feeling. But a pleasurable feeling is rather like the ear of corn that the shrewd darky dangled from a pole in front of his mule to tease him along, than like the blue-beech stimulus that he probably carried behind. And the feeling of pleasurable interest is quite as effective a bait to effort on the part of the human being as was the ear of corn to the lazy mule.

In any given mental effort the feeling of interest follows an act of attention, and therefore cannot be the cause or motive of this attention.

But if the resulting feeling of interest is pleasurable, a desire to continue or repeat the experience of it will lead the pupil to seek a repetition of the kind of mental effort that engendered it. It is in this *ex post facto* way that pleasurable interest comes to play the part of a supposed motive to intellectual effort.

Now the intellectual effort that is necessary to engender the experience of interest is the perception of a relationship between two terms; and for the interest to be most intense, one of these terms must be the subject himself of the process. Without attention, this perception of relation could not take place, and without the perception of the relationship there would be no feeling of interest. In this paper I am employing the noun *attentiveness* to denote positive attention plus the concomitant feeling of interest, and the transitive verb *interest* to denote the securing of attentiveness.

But oneself has been implicit in all the past life of his forbears, even through all the millions of years of the evolutionary life process; and so will oneself be implicit for help or hindrance in all the millions of years of life that the race may be expected yet to live. Thus the history of one's race, and of all the factors, human and extra-human, that affect that history, both past and future, is the history of oneself. In the case of alien-cultures that have come into their own, there is still the implication that but for them, and if they had been different, our lives and our racial outlook would be different from what they are. And it is but a step to the interesting contemplation of what our present lives would now be, and of what our future outlook would be as a strain of the human race, if ours had been the culture of the Chinese, or Hindu, or African race. Moreover, we cannot by nature be so selfish and inhuman as not to wish and demand for these people as hopeful an outlook as we ourselves have. So it was that we went to war in the interest of world-wide democracy, and so it is that the social struggle now on will never be stilled until through democracy for all peoples we shall once more become united in the struggle for existence as we once were in the dim biological past. Let our pupils once be oriented so as to perceive the implications of all the many-sided aspects of their life endeavors, and let our educational process be directed with reference to the same implications, and most of our problems of inattention and listlessness will disappear.

In all this I am simply urging that in our school work we take advantage of the obvious meaning of the evolutionary process, and of our best knowledge of the nature of interest, which possess such tremendous philosophical import, and that we base our school system, our curriculum of studies, the organization of our several subjects of study, and all our teaching procedure upon this really fundamental fact of the most compelling and vital interest in conscious human endeavor. If we do this, the problems of securing persistent attention to helpful, healthful things will be solved, and the really troublesome aspects of the study-room supervisor's work will concurrently vanish.

IV.

There remains the more direct and immediate problem of the class-room teacher's daily work,—a problem; which being unsolved, leaves its own train of troubles to linger into the study hour and the study room—the only troubles that have any right to appear there. This is the problem of attack—the problem of putting the pupils upon the road of effective attack upon their subjects and included problems. Yet even here effective class-room teaching would remove most of the difficulties of the study hour.

After acquainting his pupils with the human relationships of a new subject upon which to embark, the teacher should give them a general view of the nature of its problems and of the general integration of the entire subject matter. This can generally be done effectively by the use of the author's "Preface" and "Table of Contents." Here the pupils can be introduced to the general unity of the subject matter, as conceived by the author, and of its various subdivisions in their logical relationships. And this integrated preview of the subject matter should never be allowed to grow cold. Each new topic should be studied in relation to the whole—to what has gone before, and to what is to follow—and of course to the whole human process. When such teaching is done it will leave the pupils with an organized body of knowledge, each part of which will help to recall the rest upon demand, and all of which will have some definiteness of meaning; and it will give them valuable training in the organization of their own thinking.

Then there are the more limited problems of the daily lesson—especially of the advance lesson. The teacher should have already examined and solved these before assigning them. He should have taken particular note of his own mental processes in the most effective way of solving the difficulties that may be expected to perplex his pupils; and thus at the time of assignment he should be in a position to put their minds upon the path of following the same processes. For here, as everywhere else in the educative process, processes and relationships are the ultimate materials into which every bit of knowledge is to be reduced for effective consumption and use. If advance lessons are properly assigned, unnecessary study-room perplexities will be largely eliminated for the pupils, and therefore for the supervisor as well. Moreover, after some years of such directed attack upon their work, college freshmen should not be the helpless babes and sucklings that must now be spoon-fed through half of their college course.

And now for the recitation itself. The heart of the recitation period should be devoted to direct questioning upon the vital problems of the lesson, for which the assignment has already prepared the pupils. This done, the rest of the period may be devoted to a discussion of the meaning of the lesson facts, which means a discussion of their relationships to human life; but no teacher has any right to hold his pupils accountable for what is not directly pertinent to the lesson assigned. Furthermore, if the pupils know that they are to be tested directly, they have a far more definite and com-

pling incentive to prepare their lessons. There is no pleasurable interest in life comparable to that of showing that one knows. I think that my my greatest difficulty, in both oral and written work, is to hold my students to concise statements that will answer just so much as my questions ask for, and no more. Their pleasurable indulgence in showing all they know, or think they know, is almost irrepressible. It is comparable to a whole bushel of corn held by our Yankee dorky before his slow-plodding but hungry mule.

V.

These three class-room failures, it is, then, that relegate to the study room most of the current troubles of both pupils and supervisor: First, the failure to orient the pupils so as to give a real and significant meaning to their school-day endeavors and to all the knowledge and training that they accumulate thereby; second, the failure so to assign their lessons as to put them upon the track of surmounting their difficulties, and hence the implicit failure to teach them to attack new lessons upon their own initiative; and third, the failure, by direct testing for accurate apprehension of the essential elements of the lesson, to stimulate to persistent effort and to accurateness of apprehension. For only such a basis of accurately apprehended facts can be trustworthily employed in the perception of relationships that will give the facts a reliable meaning. So long as these three class-room failures persist, a knowledge of them as the source of his difficulties should put the study-room supervisor upon the track of solving them.

In conclusion, it may appear too bad that I have not addressed myself more directly to the actual disciplinary and administrative problems that at present confront the study-room supervisor. But to have done that would have been to admit an acceptance of these problems as necessary and persistent. It would intimate an acceptance of our present civilization as constituting the best of all possible worlds. It would intimate an acceptance of our present curriculum as the best possible means of training our youth for participation in this far from best of all possible worlds. It would intimate an acceptance of our present notions of administering education as the best possible procedure for making this far from adequate curriculum serve as a means of preparation for participation in this far from best conceivable world in which to live. Such an attitude of mind the teacher and educator should be the last persons in the world to possess and to manifest.

SYNOPSIS OF BUSINESS MEETING

UNIVERSITY HALL, APRIL 2, 1920

The meeting was called to order by President Chas. C. McKenny. Upon motion the minutes of the Secretary were considered read as printed in the last Journal of the Club.

The Financial Report of the Secretary-Treasurer and of the Auditing Committee were read and approved.

The report of the Nominating Committee was adopted.

The report of the Committee on Resolutions was adopted.

NOMINATING COMMITTEE

Representing the Club at Large—W. G. Coburn, Battle Creek; J. H. Kaye, Northern State Normal; Sadie M. Alley, Detroit Northwestern.

Classical Conference—F. O. Bates, Detroit Central.

Modern Languages—Bertha Williams, Flint.

English—Esca G. Rodger, Highland Park.

History—E. A. Balch, Kalamazoo College.

Physics and Chemistry—Paul Rood, Western Normal.

Mathematics—Nancy S. Phelps, Detroit Southeastern.

Biology—Helen B. King, Saginaw.

Commercial—O. V. Adams, Ann Arbor.

Geography and Geology—F. W. Frostic, Wyandotte.

Art—Elizabeth Burbank, Grand Rapids.

Manual Training—J. S. Bicknell, Muskegon.

Educational Psychology—H. C. Lott, State Normal College.

Home Economics—Alice M. Cimmer, Battle Creek.

High School Library—Edith Thomas, University Library.

Administrative Teachers' Conference—A. F. Jones, Detroit Northwestern.

COMMITTEE ON RESOLUTIONS

L. A. Butler, Ann Arbor; Anna S. Jones, Grand Rapids; Wm. E. Praeger, Kalamazoo College.

AUDITING COMMITTEE

Albertus Darnell, Detroit Central; J. P. Everett, Western State Normal; A. G. Hall, University.

FINANCIAL REPORT OF THE SECRETARY-TREASURER, 1919-1920

1919

RECEIPTS

Balance as per last report, Commercial Department.....	\$	166.37
Balance as per last report, Savings Department		27.87
March 31. Deposited dues		65.00
April 3. " "		772.00
" 4. " "		318.17
" 5. " "		53.00
June 26. " advertisements		2.50
Oct. 11. " " and dues		12.00
" 23. " dues		1.00
Dec. 30. " " and Journals		1.70

1920

March 24. Deposited back dues.....	\$	33.00
" 24. " advertisements		10.00

\$1462.81

DISBURSEMENTS

1919

April 1. Check No. 468, Emil Lorch, Art Conference	\$	2.41
" 1, " " 469, L. P. Jocelyn, Salary		100.00
" 3, " " 470, O. D. Morrill, By-Laws		1.30
" 4, " " 471, Prof. Henry Johnson, Address		75.00
" 4, " " 472, Nellie Breathwaite, Clerk		5.25
" 4, " " 473, Emma Kapp, Clerk		4.95
" 11, " " 474, H. J. Abbott, P. M., Three Cent Stamps		3.00
" 12, " " 475, Ethel L. Evans, Clerk		3.90
" 17, " " 476, L. P. Jocelyn, Door-keepers		17.75
" 19, " " 477, E. E. Gallup, Flowers for Supt. Keeler.....		12.00
" 25, " " 478, Ann Arbor Press		121.75
May 6, " " 479, S. W. Millard, Badges and Receipt Books		43.00
" 17, " " 480, University of Chicago, 500 Reprints		24.00
" 17, " " 481, B. D. Stowell, Commercial Conference		4.18
" 17, " " 482, A. S. Whitney, Postage		6.45
" 17, " " 483, Ann Arbor Press, Programs Short Term Institute..		15.00
" 17, " " 484, Mary Harden, History Conference		3.00
" 17, " " 485, H. H. Thomas, Dues Overpaid		1.00
Sept. 9, " " 486, Mary Derby, English Conference		5.00
Oct. 1, " " 487, L. P. Jocelyn, Salary		100.00
" 9, " " 488, H. J. Abbott, P. M., Stamps		3.00
" 10, " " 489, George Wahr, Cards for Catalogue		4.50
" 11, " " 490, E. O. Marsh, Expense of President		3.10
" 11, " " 491, Emma G. Huneker, 1918 English Conference		3.35
" 11, " " 492, Farmers & Mechanics Bank, Savings Department		500.00
" 21, " " 493, J. B. Davis, Executive Committee		10.00
" 21, " " 494, Jessie Gregg, Executive Committee		5.79
" 21, " " 495, C. W. Greene, Executive Committee		2.20
" 21, " " 496, A. G. Hall, Executive Committee		3.98
" 21, " " 497, L. P. Jocelyn, Executive Committee		3.63
" 21, " " 498, C. C. McKenny, Executive Committee		4.15
Dec. 16, " " 499, Office Expenses, One Year		109.55
" 16, " " 500, L. P. Jocelyn, Salary to Oct. 1		50.00

1920			
Jan.	2,	" " 501, H. J. Abbott, P. M., Stamps	2.00
"	31,	" " 502, H. J. Abbott, P. M., Stamps	2.00
Feb.	11,	" " 503, Michigan Union, Executive Committee	2.25
"	11,	" " 504, H. J. Abbott, P. M., Postal Cards	3.50
"	13,	" " 505, H. J. Abbott, P. M., Two Cent Stamps	2.00
Mar.	12,	" " 506, H. J. Abbott, P. M., One Cent Stamps for Programs..	45.00
"	19,	" " 507, H. J. Abbott, P. M., Stamps	5.00
Total Disbursements			\$1313.94
Total Receipts			1462.81
Total Balance			\$ 148.87
Balance in Savings Department			27.87
Balance in Commercial Department			\$ 121.00
In Savings Department			\$ 527.87
In Commercial Department			121.00
Total Balance			\$ 648.87

, REPORT OF NOMINATING COMMITTEE

Your Committee on Nominations begs leave to make the following report:

For President—William E. Praeger, Kalamazoo College.

For Vice-President—Helen B. King, Saginaw.

For Member of Executive Committee (for Three Years)—A. G. Hall, University.

For Officers of the Conferences—The persons elected by the different Conferences.

W. G. COBURN,
F. W. FROSTIC,
J. H. KAYE.

, REPORT OF AUDITING COMMITTEE

The Auditing Committee begs to report that they have examined the accounts and vouchers of the Treasurer of the Michigan Schoolmasters' Club and have found the same to be correct and accurate.

Respectfully submitted,

ALBERTUS DARNELL,
JOHN P. EVERETT,
ARTHUR G. HALL,
Committee.

REPORT OF THE COMMITTEE ON RESOLUTIONS

The Michigan Schoolmasters' Club expresses great confidence in the officers of the Teachers' Retirement Fund Board and enthusiastically endorses its efforts to place the Retirement Fund on a sound actuarial basis.

We hereby subscribe to the recent action of the North Central Association in unalterably opposing the lowering of the standards of high school teachers and we heartily favor encouraging all other teachers to prepare as adequately for their work by placing such teachers on the same salary schedule.

The liberality of the University toward the establishment of Junior Colleges is warmly approved.

We commend the University Department of Education in establishing a Bureau of Educational Research and Educational Statistics which will serve superintendents and other school officials in an informal and advisory capacity and instruct superintendents who desire to survey their own school systems.

We desire again to record our conviction that education is the biggest and the strongest safeguard of the nation; that no other work is more important. We would have the public realize that good teachers contribute as much as, if not more than, any other body of workers to the *material* as well as the moral progress of this republic and the most *economical* way to manage our schools is to make the remuneration for teaching large enough to attract the best teaching talent.

We record with profound regret the death of Professor E. A. Strong, of the State Normal College, one of the oldest members of this Club, and long a leader in the educational circles of the State. In his death the State loses a teacher and leader of the highest type, the community a kindly gentleman and scholar, and the Club a loved and honored member. His influence will long remain an inspiration to those who have known him as friend and teacher, and a benediction to the work he loved so well.

L. A. BUTLER,
ANNA S. JONES,
WM. E. PRAEGER,

Committee.

The meeting adjourned.

LOUIS P. JOCELYN, Secretary.

PROGRAM OF GENERAL SESSIONS

Eastern Standard Time

Tuesday Evening, March 30

8:00 o'clock

Hill Auditorium

Concert by the **Trio de Lutece.**

George Barrere, Flute.

Carlos Salsedo, Harp.

Lucien Schmid, 'Cello.

Compliments of the University Musical Society. Extra Series No. V. Complimentary to all members of the Schoolmasters' Club who pay their dues for 1920 in advance. Reserved seat tickets will be sent by mail to all members whose dues are in the hands of the Secretary, L. P. Jocelyn, by March 24. Tickets may also be procured at the Secretary's desk at headquarters from 3 to 6 P. M. on Tuesday, March 30.

Thursday Morning, April 1

Joint Session of the Schoolmasters' Club and Short-Term Institute

9:30 o'clock

University Hall

President—President Chas. C. McKenny, State Normal College.

Vice-President—Principal Jesse B. Davis, Grand Rapids.

Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

1. Short Business Meeting.
2. 10:00 o'clock. Lecture: Mental Tests and Vocational Guidance, Dr. Lewis M. Terman, Professor of Education, Leland Stanford Jr. University, California.
3. 11:00 o'clock. Lecture: Significant Observations on Experiences in helping to Provide Educational Opportunities for our American Expeditionary Forces in France and Occupied German Territory, Superintendent Frank B. Spaulding, Cleveland, Ohio.

Thursday Afternoon, April 1

4:00 o'clock

Barbour Gymnasium

Gymnastic Drill by University Girls.

MICHIGAN FEDERATION OF TEACHERS' CLUBS

4:30 o'clock

Room B-2, High School

Chairman—Miss Syra Smith, Jackson.

Secretary—Oscar S. Trumble, Jackson.

General Business of the Officers and Committees of the Federation.

MICHIGAN INTERSCHOLASTIC ATHLETIC ASSOCIATION

4:15 o'clock

Room B-8, High School

Chairman—Principal H. S. Doolittle, Saginaw.

Secretary—Mr. Ora Travis, Pontiac.

1. General Discussion of Interscholastic Athletics.
2. Business Meeting.

Thursday Evening, April 1

8:00 o'clock

Auditorium, High School

Chairman—Dean M. E. Cooley, University.

Secretary—Professor A. H. White, University.

A Joint Meeting of the Michigan Schoolmasters' Club and the Faculty of the College of Engineering.

1. Entrance Requirements of the Engineering College as viewed by—
 - (a) The Engineering College,
Professor A. H. White, University of Michigan.
 - (b) The Smaller High School,
Principal Robert W. Ward, Mt. Clemens.
 - (c) The Larger High School,
Principal H. S. Doolittle, Saginaw, E. S.
 - (d) General Discussion.
2. Relation between the Engineering College and the Junior Colleges.
 - (a) The Present Policy of the Engineering College toward Affiliation with other Colleges,
Professor H. S. Sadler, University of Michigan.
 - (b) The Junior College,
Principal David MacKenzie, Detroit.
 - (c) General Discussion.

Thursday Evening, April 1

8:00 o'clock

Auditorium, Natural Science Building

Symposium: The Peril of Michigan Idle Lands.

Friday Morning, April 2

(Admission by badge)

9:30 o'clock

University Hall

BUSINESS MEETING

1. Reports of Officers.
 2. Reports of Committees.
 3. Miscellaneous Business.
- Literary Program of General Session.
1. 10:00 o'clock. Lecture: Roman Economics: IV. Labor and Labor Conditions,
Professor Tenney Frank, Johns Hopkins University.
 2. 11:00 o'clock. The Method of Democracy,
Professor James F. Hosc, Chicago Normal College.

Friday Evening, April 2

7:45 o'clock

Hill Auditorium

Joint Meeting of Schoolmasters' Club and Academy of Science.

1. The New Day in American Agriculture,
Dean Eugene Davenport, University of Illinois.

EXHIBIT

Wednesday—Friday

Alumni Hall

The University of Michigan Library Extension Service will give an Exhibit showing the latest pamphlet literature on important questions of the day, and other suggestive materials of special interest to teachers of History, Civics, English, Public Speaking and Debating.

ALUMNAE OPEN HOUSE

The Board of Governors of the Alumnae House, 1227 Washtenaw Avenue, invite the Alumnae and friends to Tea and Open House on Friday, April 2, from 4 to 6 P. M. .

JUNIOR GIRLS' PLAY

Friday Evening, 8:00 o'clock, March 26, at the Whitney Theatre.

Saturday afternoon, 2:00 o'clock, March 27, at the Whitney Theatre.

Tickets for the Play may be obtained from Marcella Moon at the Alpha Phi House.

WOMEN'S ANNUAL LUNCHEON AND RALLY

Saturday, April 3, at Barbour Gymnasium, for undergraduates, alumnae, and friends. Tickets may be obtained from Marguerite Chapin, Martha Cook Building. Immediately after luncheon a "Rally" for Michigan women will be held. All women present at the luncheon are cordially invited to remain for the "Rally" whether Michigan women or not.

MICHIGAN HOME ECONOMICS ASSOCIATION

Friday Morning, April 2

10:00 o'clock

Room B-2, High School

Meeting of the Michigan State Executive Committee.

PROGRAM OF CONFERENCES

Eastern Standard Time

CLASSICAL INSTITUTE AND TWENTY-SIXTH CLASSICAL CONFERENCE

Tuesday Afternoon, March 30

Small Lecture Room, Alumni Memorial Hall

4:15 o'clock

1. Greek Religion and Mythology: I. Aegean Religion.
Professor Campbell Bonner, University of Michigan.

Wednesday Forenoon, March 31

Small Lecture Room, Alumni Memorial Hall

10:00 o'clock

2. Greek Religion and Mythology: II. Primitive Elements in the Religion of Historical Greece.

Professor Campbell Bonner, University of Michigan.

11:00 o'clock

University Lecture

3. Roman Economics, I. General Tendencies.
Professor Tenney Frank, Johns Hopkins University.

Wednesday Afternoon, March 31

2:00 o'clock

Upper Lecture Room, Alumni Memorial Hall

4. Some Evidences of the Influence of Classical Mythology in the Daily Life of Mount Clemens, Michigan,

Miss Mabel J. Mathers, Mount Clemens High School.

5. The Use of Slides in Secondary Work,

Miss Viola Marshall, Adrian High School.

6. Nothing New Under the Sun,

Professor B. L. D'Ooge, Michigan State Normal College.

7. Folk-Tales from my Home on a Greek Island,

Mr. M. G. Perros, University of Michigan.

4:00 o'clock

University Lecture

8. Roman Economics: II. Industries,
Professor Tenney Frank, Johns Hopkins University.

5:00 o'clock

9. Greek Religion and Mythology: III. The Upward Path,
Professor Campbell Bonner, University of Michigan.

Wednesday Evening, March 31

7:30 o'clock

Upper Lecture Room, Alumni Memorial Hall

Symposium: Latin in First Aid Work for English.

10. Greek and Latin as Aids to English Composition,
Dr. M. C. Wier, University of Michigan.

11. The S. O. S. of the English Teacher,

Professor Abigail Pearce, Michigan State Normal College.

12. When Latin Ears are Deaf to the Call,

Miss Bessie M. Camburn, Mount Clemens High School.

13. Latin and English in a Constructive Alliance,
Miss Nina E. Bristol, Lansing High School.

Round Table Discussion.

TWENTY-SIXTH CLASSICAL CONFERENCE

(Admission by badge)

Chairman—Professor A. H. Harrop, Albion College.

Vice-Chairman—Miss King, Highland Park High School.

Secretary—Miss Clara Janet Allison, Michigan State Normal College

Thursday Afternoon, April 1

2:00 o'clock

Small Lecture Room, Alumni Memorial Hall

14. Business Meeting.
Symposium: The Place of Latin in the Reorganized Secondary School.
15. The Value of Latin in Modern Life,
Principal Edwin L. Miller, Northwestern High School, Detroit.
16. Realizing Values through the Class Room,
Miss Mary H. Curtiss, Ionia High School.
17. Adjusting Latin to Vocational Needs,
E. C. Bartlett, Northern High School, Detroit.
18. Getting Results in the Junior High School,
Miss Ella Campbell, Jackson, Michigan.
General Discussion: Contributory Factors,
Miss Sarah Putnam, Library Staff, Michigan State Normal College.
Miss Mabel R. Collins, Manistee High School.

4:00 o'clock

Small Lecture Room, Alumni Memorial Hall

University Lecture

19. Roman Economics: III. Capital and Commerce,
Professor Tenney Frank, Johns Hopkins University.

5:00 o'clock

20. Greek Religion and Mythology: IV. The Picture-books of Ancient Greeks—A Study of Mythology and Art,
Professor Campbell Bonner, University of Michigan.

MODERN LANGUAGE CONFERENCE

Chairman—Miss Lilly Lindquist, Detroit Normal School, Detroit.

Secretary—Professor A. G. Canfield, University of Michigan.

Thursday Noon, April 1

Luncheon at the Michigan Union, Room 316, at 12:15

The luncheon will be followed by informal talks and discussions. All desiring tickets for the luncheon (75 cents) are requested to send their names to Professor H. P. Thieme, 3 Geddes Heights, Ann Arbor.

MICHIGAN SCHOOLMASTERS' CLUB

Thursday Afternoon, April 1

(Admission by badge)

2:30 o'clock

Room 203, University Hall

1. Proposed Outline of Study in French for High School Courses of Two Years, Four Years, and Six Years, Report presented by
Miss Mildred Connely, Detroit City Normal.
2. Trials of a Censor,
Mr. Howard F. Fenstemaker, Highland Park High School.
3. First Year French in a Small High School,
Miss Mildred Armstrong, Adrian High School.

3:30 o'clock

4. La Littérature de la Guerre,
Professor René Talamon, University of Michigan.

(The more important new books for French and Spanish teaching will be accessible for examination.)

Friday Noon, April 2

Luncheon at the Michigan Union, Room 316, at 12:15

The luncheon will be followed by informal talks and discussions, in which Spanish will be given prominence. All desiring tickets for the luncheon (75 cents) are requested to send their names to Professor H. P. Thieme, 3 Geddes Heights, Ann Arbor.

Friday Afternoon, April 2

(Admission by badge)

2:30 o'clock

Room 203, University Hall

Presiding Officer—Professor C. P. Wagner, University of Michigan.

5. Predetermination Tests for Pupils entering Modern Language Classes,
Miss Joan Alpermann, Michigan State Normal College, Ypsilanti.
6. "Problems and Platitudes,"
Miss Bertha Williams, Flint High School.
7. Aims and the Methods in Spanish,
Miss Geraldine Sheehan, Northern High School, Detroit.
8. New Books for French and Spanish Instruction, General Discussion.
(The more important new books for French and Spanish teaching will be accessible for examination.)

ENGLISH CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

2:00 o'clock

High School Auditorium

Chairman—Miss Caroline E. Britten, Jackson.

Secretary—Miss Leona M. Belser, Highland Park.

1. Better Speech Week—Does it pay?

Miss Esca G. Rodger, Highland Park.

2. The English Teacher at School to the Doughboy,

Mr. C. C. Certain, Cass Technical High School, Detroit.

3. Service and the Course in English,

Miss Clara Beverley, Detroit, Supervisor of English, Elementary Schools.

4. Manikin and Minikin, A Bisque Play,

—Alfred Kreymborg.

Presented by the members of the English Department, Jackson High School.

Cast: Manikin—Miss Edith Bolster.

Minikin—Miss Alma Young.

Friday Afternoon, April 2

2:00 o'clock

High School Auditorium

1. Lecture—Recital of Folk Songs,

Miss Nora Hunt, Faculty School of Music, Ann Arbor.

2. Presentation of the New Course in English as Outlined for the Detroit Schools,

Principal E. L. Miller, Detroit.

Discussion,

Principal F. L. Bliss, Jackson.

3. General Discussion.

NOTE—Teachers of English are invited to be present at the Classical Conference Wednesday Evening, and to take part in the discussion following the program on "Latin in First Aid Work for English."

HISTORY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

1:30 o'clock

Room C-3, High School

Chairman—Mary Ann Gilligan, Central Normal School, Mt. Pleasant.

Secretary—Mary Harden, South High School, Grand Rapids.

1. Teaching Economics in the High School,

Mr. L. S. Gullen, Superintendent of Schools, Clare.

2. History as an Aid in Teaching Americanization,

Professor Smith Burnham, Western State Normal School.

3. What a History Teacher Gained Out of a Year in France During the War and After,

Dr. Ernest Alanson Balch, Kalamazoo College.

4. Report of Committee on Nature and Amount of Michigan History that Should be Given in the Grades,

E. J. Quackenbush, Chairman, Highland Park.

5. General Discussion.

6. Business Meeting.

Friday Afternoon, April 2

1:30 o'clock

Room C-3, High School

7. The New Civics,
Mr. George Bechtel, Principal of Northern High, Detroit.
8. Some Problems of British Imperial Federation,
Professor Arthur L. Cross, University of Michigan.
9. A Study of the Report of the American Historical Association
Committee on History and Education for Citizenship in
the Schools,
Professor Claude Larzelere, Central Normal School.
10. Discussion.

PHYSICS AND CHEMISTRY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

1:45 o'clock

Physical Laboratory, West Lecture Room

- Chairman—Professor B. W. Peet, Michigan State Normal College.
 Vice-Chairman—Professor John E. Fox, Western State Normal School.
 Secretary—Professor D. L. Rich, University of Michigan.
1. What We Get Out of Our Radio Club,
Mr. Walter G. Marburger, Battle Creek High School.
 2. Historical Development of the Dissociation Theory,
Mr. Harry Smith, Port Huron High School.
 3. Einstein's Gravitational Theory,
Professor W. F. Colby, University of Michigan.
 4. Pharmacology, A Common Ground on Which It Meets Physics and
Chemistry,
Mr. Herbert C. Hamilton, Chemist, Detroit, Michigan.
 5. Equipment of the Physics Laboratory Shop and Home Made Ap-
paratus (Illustrated).
Professor Edwin Morrison, Michigan Agricultural College.

Friday Afternoon, April 2

1:45 o'clock

Physical Laboratory, West Lecture Room

1. Making Use of the Pupil's Experiences in Physics,
Mr. Paul Rood, Western State Normal School.
2. A Discussion of Solutions,
Professor Edward Campbell, Director of Chemical Labora-
tories, University of Michigan.
3. A Study of Some Chemical Tests,
Mr. B. J. Rivett, Northwestern High School, Detroit.
4. Some Interesting Apparatus:
 - (a) A German Range Finder,
Demonstration and Discussion,
Dr. R. A. Sawyer, University of Michigan.
 - (b) Wescott's Slides for Testing Color Blindness,
Demonstration and Discussion,
Professor F. R. Gorton, Michigan State Normal College.
 - (c) Rowland's Dividing Engine,
Demonstration and Discussion,
Dr. E. F. Barker, University of Michigan.

The first Rowland dividing engine for ruling optical gratings will
be on exhibition at this meeting.
5. Business Meeting.

MATHEMATICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

12:15 o'clock

Luncheon at Baptist Church

(Reservations for the luncheon may be made by writing Miss Mary L. Welton, 419 N. Ingalls St., Ann Arbor, before March 30th. Tickets 85 cents.)

2:00 o'clock

Room B, Law Building

Chairman—Miss Sadie M. Alley, Northwestern High School, Detroit.

Secretary—Miss Mary Louise Welton, Ann Arbor.

1. The Reorganization of the First Courses in Secondary School Mathematics,

J. A. Foberg, Vice-Chairman of the National Committee on Mathematical Requirements, Crane Technical High School, Chicago, Ill.

Discussion led by

Mr. A. Darnell, Detroit Central High School, Detroit, and
Professor Louis C. Karpinski, University of Michigan.

2. A Report of the Meeting of the Mathematics Section of the National Association (N. E. A.) at Cleveland,
Mr. Joseph V. McNally, Northwestern High School, Detroit.

Friday Afternoon, April 2

2:00 o'clock

Room B, Law Building

3. Generalized Forms of Rolle's Theorem as Solutions of a Problem in Statics,
Professor D. R. Curtiss, Northwestern University.
4. Projects—High School Mathematics,
Miss Orpha E. Worden, Detroit City Normal.
5. Humanizing Factors in the Introductory Courses as Proposed by the National Committee on Mathematical Requirements,
Professor Raleigh Schorling, Lincoln School of Teachers College, New York.

BIOLOGICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

2:00 o'clock

Auditorium, Natural Science Building

Chairman—Miss Grace F. Ellis, Grand Rapids.

Secretary—Miss Helen B. King, Saginaw.

1. Film—How Life Begins,
Dr. Martin, Battle Creek.
2. Report on the Work of the State Board of Health among High
Schools,
Miss Marjorie Delavan.
3. Health and the Curriculum,
W. B. Arbaugh, Secretary of the Wayne County Division of the
Uniform County Educational System, Detroit.
4. Discussion,
Mrs. Glenadine Snow, State Normal College.

Friday Afternoon, April 2

12:00 Noon

Luncheon for Biologists, Room B-100, Natural Science Building

60 cents

2:00 o'clock

Room F-214, Natural Science Building

5. Federal Activities Looking toward the Exclusion of Plant Pests
from the United States,
Professor C. H. Kauffman, University of Michigan.
6. Some Fundamental Principles of Genetics,
Professor Bradley M. Davis, University of Michigan.

COMMERCIAL CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

Two o'clock, Eastern Standard Time

Room C-17, High School

Chairman—Mr. H. E. Ten Eyck, Western High School, Bay City, Mich.
 Secretary—Miss Genevieve Cross, High School of Commerce, Detroit.

1. English and the Commercial Student,
 Mr. J. E. Thornton, Department of English, University of Michigan.
 2. Training for Modern Business,
 Professor David Friday, University of Michigan.
 3. _____,
 Ex-Governor Ferris, Big Rapids, Mich.
 4. The Ford Idea at Work,
 Mr. E. M. Mulock, Director Department of Education, Ford Motor Company, Detroit.
 5. Looking Forward,
 Geo. L. Lusk, Secretary Public Domain Commission, Lansing.
- Luncheon will be served Thursday noon, at the Methodist Church, across from the High School, at 75 cents a plate. Make reservations with Mr. O. V. Adams, Ann Arbor High School, before March 25.

Two of the above speakers will deliver their addresses at this luncheon.

GEOGRAPHY AND GEOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, April 1

2:00 o'clock

Room 217-G, Natural Science Building

Chairman—Mr. Burton Barnes, Detroit.
 Secretary—Miss Genevieve Clark, State Normal College.

1. Type Studies in Geography,
 Mr. K. C. McMurry, University of Michigan.
2. How the State Geological Department may be of Service to Teachers,
 Mr. R. A. Smith, State Geologist, Lansing, Mich.
3. Modern Educational Demands and Geography,
 Superintendent F. W. Frostic, Wyandotte.

Friday Afternoon, April 2

2:00 o'clock

4. A Job for Michigan Geography,
 Professor C. O. Sauer, University of Michigan.
5. Making the Map to Illustrate the German Peace Treaty,
 Mark Jefferson, State Normal College, and Member of President Wilson's Party at Peace Conference.
6. The Movies in Teaching Geography, Illustrated with moving pictures,
 J. U. Wilson, Department of Visual Education, Detroit Schools.

ART CONFERENCE

(Admission by badge)

Friday Afternoon, April 2

1:30 o'clock

Room A, Alumni Building

Chairman—Miss Agnes Van Buren, Grand Rapids.

Secretary—Miss Ada L. Whitney, Detroit.

1. The Need for Missionary Work in Art Education,
Mr. G. F. Pelikan, Art Instructor, Central High School, Grand Rapids.
2. The Relation of Art to Vocational Training,
Miss Elizabeth Burbank, Assistant Principal of Vocational School, Grand Rapids.
3. A Plea for a Closer Correlation between the Fine Arts Department and Industrial Arts Department of our Public Schools,
Miss Katherine C. Margah, Art Director, Highland Park High School.

An exhibit of the Art Work of the Public Schools of Michigan, illustrating design and commercial design will be held in the Gallery of the Alumni Building Thursday and Friday, under the direction of Miss Bertah Goodison of the State Normal College.

MANUAL TRAINING CONFERENCE

(Admission of badge)

Friday Afternoon, April 2

2:00 o'clock

Room C-1, High School

Chairman—Professor George E. Myers, University of Michigan.

Secretary—Professor Arthur E. Bowen, Western State Normal.

- I. New Developments in Industrial Education. (Ten minutes each.)
 1. In Detroit,
Mr. J. H. Trybon, Director Manual Training, Detroit.
 2. In Saginaw, W. S.,
Principal Charles L. Marsh, Arthur Hill Trade School, Saginaw, W. S.
 3. In Grand Rapids,
Principal George B. Frazee, Jr., Vocational School, Grand Rapids.
 4. In Battle Creek,
Mr. G. G. Price, Director of Vocational Education, Battle Creek.
 5. In Muskegon,
Mr. J. S. Bicknell, Director of Manual Training, Muskegon.
 6. In Port Huron,
Superintendent H. A. Davis, Port Huron.
- II. What Effect will Smith-Hughes Work have on Manual Training?
Mr. L. R. Abbott, Director of Manual Training, Grand Rapids.
- III. Training Foremen in Manufacturing Plants,
Professor Diamond, University of Michigan.

There will be a joint luncheon of the Manual Training and Home Economics Sections at the Michigan Union Friday, April 2 at 12 o'clock. The price of the luncheon will be 75 cents. The luncheon will be over in time for the programs to begin promptly at 2:00.

EDUCATIONAL PSYCHOLOGY CONFERENCE

Jointly with the Academy of Science

Thursday Afternoon, April 1

2:00 o'clock

Room B-6, High School

Chairman—Professor E. C. Rowe, Central Normal.

Secretary—Principal J. F. Thomas, Detroit.

1. The Psychology of Character,
Professor Guy M. Whipple, University of Michigan.
2. Discussions,
Professor H. F. Adams, University of Michigan.

HOME ECONOMICS CONFERENCE

(Admission by badge)

Friday Afternoon, April 2

2:00 o'clock

Room B-1, High School

Chairman—Miss Mary F. Baldwin, Grand Rapids.

Secretary—Miss Alice M. Cimmer, Battle Creek.

1. Business Meeting.
2. The Vocational School,
Miss Elizabeth Burbank, Grand Rapids.
3. Research Work in Scientific Feeding,
Miss Emma Francis, Sanitarium, Battle Creek.
4. Home Economics in High Schools,
Miss Vera S. Smith, Kalamazoo.

HIGH SCHOOL LIBRARY CONFERENCE**Thursday Afternoon, April 1**

2:00 o'clock

Room 407, University Library

Chairman—Miss Edith A. King, Jackson, Michigan.

Secretary—Mrs. Ellen M. Linton, Detroit, Michigan.

1. The University of Michigan Library Extension Service,
Miss Edith Thomas, University Library, Ann Arbor.
2. Library Work in Relation to English and Literature Courses,
Miss Farnsworth, Cass Technical High, Detroit, Michigan.
Discussion.
3. Methods and Problems of the High School Library of Today.
(All present are requested to bring their questions and suggestions for discussion at this time.)
Business Meeting.

Friday Afternoon, April 2

All Librarians are invited to meet at 11:30 at the new Library for a tour of inspection of the building.

Luncheon at the University Library, at 12:30 for Librarians. Please notify Mrs. Linton, or Miss Gillette if you wish to attend.

2:00 o'clock

4. The Heart of the School,
Mr. F. L. Bliss, Jackson, Michigan.
5. Profit in Reading for Pleasure,
Miss Marie A. Newberry, Toledo Public Library, Ohio.
6. Subject announced later,
Mr. F. K. Walter, Detroit, Michigan.
7. A Shelf of New Books,
Mr. F. L. D. Goodrich, University Library.

ADMINISTRATIVE TEACHERS CONFERENCE

(House Principals, Grade Principals, Session Room Teachers,
and all High School Principals interested)
(Admission by badge)

Thursday Afternoon, April 1

2:00 o'clock

Tappan Hall

Chairman—Mr. Warren J. Frye, Eastern High School, Detroit.
Secretary—Miss Florence M. Rennie, Ann Arbor.

1. Vocational Guidance,
Principal J. B. Davis, Grand Rapids.
2. Discussion,
Miss Nellie M. Hayes, Grand Rapids.
3. Personal Guidance,
Miss Grace C. Jones, Central High School, Detroit.
4. Discussion,
Miss Margaret E. Thompson, Central High School, Detroit.

Friday Afternoon, April 2

5. Educational Guidance,
Principal David Mackenzie, Detroit.
6. Discussion,
Principal H. S. Doolittle, Saginaw, E. S.
7. The Students' Study Hour,
Professor O. O. Norris, State Normal College.
8. Discussion,
Mr. Austin F. Jones, Northwestern High School, Detroit.
9. Business Meeting.

Members of the Schoolmasters' Club

Members for Ten or More Consecutive Years

ADRIAN Reed, E. J.	Darnell, Albertus Gee, E. F. Hine, Katherine G. Hull, Isabella H. Irwin, F. C. Mackenzie, David Malcomson, Rachel A. Thompson, E. C. Thompson, Marg't E.	FLINT Cody, A. N. Nutt, H. D. Parmelee, L. S. Puffer, W. J.
ALBION COLLEGE Goodrich, F. S. Greene, C. W.		GRAND RAPIDS Greeson, W. A. Hulst, Cornelia, S.
ANN ARBOR Adams, O. V. Bennett, Ella M. Butler, L. A. Chute, H. N. Essery, E. E. Forsythe, L. L. Highley, A. M. Jocelyn, L. P. Kirchhofer, Marie O'Brien, Sarah Porter, Alice Purtell, Catherine Schaible, Ida M. Slauson, H. M. Springer, D. W. Wines, L. D.	DET. CITY NORMAL Conover, L. Lenore DETROIT EASTERN Pettee, Edith E. Strubel, R. H. DET. NORDSTRUM McMillan, D. W. DETROIT NORTHEASTERN Cooper, L. G. Fyan, Lila Kimball, Edith W. DET. NORTHERN Bartlett, A. E. Bechtel, G. G. Isbell, W. N. Miner, Mary L.	HIGHLAND PARK Margah, Katherine C. HILLSDALE Mauck, J. W. JACKSON Marsh, E. O. KALAMAZOO COLLEGE Praeger, W. E. Williams, C. B. LANSING Gallup, E. E. LINDEN Burr, C. J. MONROE Gilday, Selma MUSKEGON Craig, J. A. NILES Allen, Hildah L. NORMAL COLLEGE Allison, Clara J. D'Ooge, B. L. Goddard, Mary A. Harvey, N. A. Lyman, E. A. Peet, B. W. Priddy, Bessie L.
BATTLE CREEK Coburn, W. G. Krell, Carrie		NORTHERN NORMAL Lewis, W. F. OAK PARK, ILL. Lee, L. B. OXFORD, OHIO Bishop, Elizabeth L.
BAY CITY Sharpe, E. M.	DETROIT NORTHWESTERN Alley, Sadie M. Miller E. L. Rivett, B. J. Wentworth, W. H. DETROIT SOUTHEASTERN Corns, J. H. Phelps, Nancy S. Whitney, Edward DETROIT WESTERN Frutig, Marie L. Hempsted, Joanna K. Holmes, F. H. Liskow, Julia M. Meiser, Augusta B. Pitts, Dora H. Roper, Gertrude L. Waples, Marcia P. Weir, W. W. Wilkinson, A. O. Wiltsie, Katherine D.	MUSKEGON Craig, J. A. NILES Allen, Hildah L. NORMAL COLLEGE Allison, Clara J. D'Ooge, B. L. Goddard, Mary A. Harvey, N. A. Lyman, E. A. Peet, B. W. Priddy, Bessie L. NORTHERN NORMAL Lewis, W. F. OAK PARK, ILL. Lee, L. B. OXFORD, OHIO Bishop, Elizabeth L.
CENTRAL NORMAL Pearce, W. H. Warriner, E. C.		PONTIAC Dudley, S. M. Hazelton, R. Travis, Ora PORT HURON Davis, H. A. RIVER ROUGE McDonald, A.
CLEARY'S BUS. COL. Cleary, P. R.		
DETROIT Arbury, F. W. Boyer, C. J. Cody, Frank Courtis, S. A. Guysi, Alice V. Kepler, F. R. Merrill, John Shaw, E. R.		
DET. CASS TECH. Comfort, B. F. Cooke, C. S. Farnsworth, Mary F.		
DETROIT CENTRAL Bates, F. O. Bishop, Helen L. Brown, Jessie Chase, Ethel W. B. Copeland, Cornelia A.	FERRIS INSTITUTE Ferris, W. N.	

ST. JOHNS
Daboll, Winifred C.

SAGINAW

King, Helen B.
Warner, W. W.

SUPERIOR, WIS.

Wade, C. G.

UNIVERSITY

Beman, W. W.
Bonner, Campbell
Bradshaw, J. W.
Canfield, A. G.
Crittenden, A. R.
Cross, A. L.
Dow, E. W.

Edmonson, J. B.
Finney, B. A.
Glover, J. W.
Hall, A. G.
Hauhart, Wm. F.
Kelsey, F. W.
Lichty, D. M.
Markley, J. L.
Meador, C. L.
Nelson, J. R.
Newcombe, F. C.
Rich, D. L.
Running, T. R.
Scott, F. N.
Scott, I. D.

Tilley, M. P.
Williams, N. H.
Winkler, Max
Ziwet, A.

WESTERN STATE NORMAL

Burnham, Ernest
Everett, J. P.
Harvey, L. H.
Waldo, D. B.

WYANDOTTE

Frostic, F. W.

YPSILANTI

Hardy, Carrie A.
Ross, DeForrest

Members for Five or More Consecutive Years

ADRIAN

Reed, E. J.

ALBION

Head, W. F.

ALBION COLLEGE

Goodrich, F. S.
Greene, C. W.

ANN ARBOR

Adams, O. V.
Bennett, Ella M.
Breed, Gertrude T.
Butler, L. A.
Chute, H. N.
Downs, Lulu
Essery, E. E.
Forsythe, L. L.
George, Louise
Glasier, Lucy
Hamilton, F. G.
High, J. B.
Highley, A. M.
Jocelyn, L. P.
Kirchhofer, Marie
O'Brien, Sarah
Palmer, Mrs. J. V.
Porter, Alice
Purtell, Catherine
Rennie, Florence M.
Robison, Cora
Schaible, Ida M.
Slauson, H. M.
Springer, D. W.
Tinkham, Lona C.
Weinmann, Louise
Welton, Mary L.
Wines, L. D.

BATTLE CREEK

Atkinson, H. R.
Coburn, W. G.
Krell, Carrie

BAY CITY

Butterfield, Geo. E.
Sharpe, E. M.
Ten Eyck, H. E.

BELLEVILLE

Clark, Genevieve

CENTRAL NORMAL

Larzelere, C. S.
Pearce, W. H.
Warriner, E. C.

CLEARLY'S BUS. COL.

Cleary, P. R.

DETROIT

Arbury, F. W.
Beverley, Clara
Boyer, C. J.
Cody, Frank
Courtis, S. A.
Guysi, Alice V.
Kepler, F. R.
Merrill, John
Shaw, E. R.
Trybon, J. H.

DET. CASS TECH.

Comfort, B. F.
Cooke, C. S.
Farnsworth, Mary F.
Keal, Harry M.

DETROIT CENTRAL

Bates, F. O.
Bird, E. J.
Bishop, Helen L.
Bowerman, C. B.
Brown, Jessie
Brown, J. S.
Chase, Ethel W. B.
Collins, John A.
Conover, Kate B.
Copeland, Cornelia A.
Darnell, Albertus

Gee, E. F.

Harrah, Grace E.
Hine, Katherine G.
Hull, Isabella H.
Irland, Helen
Irwin, F. C.
Levin, S. M.
Mackenzie, David
Malcomson, Rachel A.
Mutschel, Matilda
Nielsen, N. C.
Thompson, E. C.
Thompson, Marg't C.

DET. CITY NORMAL

Conover, L. Lenore
Thomas, J. F.

DETROIT EASTERN

Fuhry, Edw. G.
Harvey, Caroline C.
Linn, Flora R.
Mann, L. B.
Merriam, A. R.
Pettee, Edith E.
Strubel, R. H.

DET. NORDSTRUM

McMillian, D. W.
Marsh, Alice Louise
Murdock, G. W.

DETROIT

NORTHEASTERN

Cooper, L. G.
Fyan, Lila E.
Kimball, Edith M.
Raycraft, R. E.

DET. NORTHERN

Bartlett, A. E.
Bechtel, G. G.
Isbell, W. N.
Miner, Mary L.
Tanis, J. E.

DETROIT
NORTHWESTERN

Alley, Sadie M.
 Carey, Eleanor J.
 Clough, Susanna A.
 Jones, A. F.
 Miller, E. L.
 Porter, J. E.
 Rivett, B. J.
 Roehm, Dorothy
 Wentworth, W. H.

DETROIT
SOUTHEASTERN

Corns, J. H.
 Farmerlee, E. Grace
 Phelps, Nancy S.
 Whitney, Edward

DETROIT WESTERN

Chapman, I. E.
 Coughlin, Nina
 Frutig, Marie L.
 Hempstead, Joanna K.
 Hickok, D. W.
 Holmes, F. H.
 Kibby, C. G.
 Liskow, Julia M.
 Meiser, Augusta B.
 Parker, Flora E.
 Pitts, Dora H.
 Roper, Gertrude L.
 Seiffert, Berthold
 Waples, Marcia P.
 Weir, W. W.
 Wilkinson, A. O.
 Wiltzie, Katherine D.
 Woodward, Mabel C.

E. LANSING (M.A.C.)

Bessey, E. A.

FERRIS INSTITUTE

Ferris, W. N.

FLINT

Cody, A. N.
 Nutt, H. D.
 Parmelee, L. S.
 Puffer, W. J.
 Wellwood, J. E.

GRAND RAPIDS

Greeson, W. A.
 Harden, Mary
 Hulst, Cornelia S.
 Van Buren, Agnes

HIGHLAND PARK

Altenburg, G. I.
 Dorsey, C. L.
 Knapp, T. J.
 Locke, J. R.
 Margah, Katherine C.
 Prakken, Wm.
 Van Loon, G. E.

HILLSDALE

Mauck, J. W.

HOWELL

Sharpe, E. Alma

JACKSON

Marsh, E. O.
 Wilcox, Elizabeth L.

KALAMAZOO

Drake, E. H.

KALAMAZOO
COLLEGE

Praeger, Wm. E.
 Williams, C. B.

LANSING

Gallup, E. E.

LINDEN

Burr, C. J.

MONROE

Cantrick, G. T.
 Gilday, Selma

MUNISING

Smith, Ross H.

MUSKEGON

Craig, J. A.
 Mott, J. B.

NILES

Allen, Hilda L.

NORMAL COLLEGE

Allison, Clara J.
 Alpermann, Johanna
 D'Ooge, B. L.
 Goddard, Mary C.
 Gorton, F. R.
 Harvey, N. A.
 Lott, H. C.
 Lyman, E. A.
 McKay, F. B.
 McKenny, C. C.
 Norris, O. O.
 Peet, B. W.
 Pray, C. E.
 Priddy, Bessie L.
 Smith, B. G.

NORTHERN

NORMAL

Lewis, W. F.
 Spooner, C. C.

OAK PARK, ILL.

Lee, L. B.

OXFORD, OHIO

Bishop, Elizabeth L.

PAINESDALE

Jeffers, F. A.

PONTIAC

Dudley, S. M.
 Hazelton, R.
 Travis, O.

PORT HURON

Davis, H. A.

RIVER ROUGE

McDonald, A.

SAGINAW

King, Helen B.
 Warner, W. W.

ST. JOHNS

Buck, F. P.
 Daboll, Winifred C.

SUPERIOR, WIS.

Wade, C. G.

UNIVERSITY

Beman, W. W.
 Bishop, W. W.
 Bonner, Campbell
 Bradshaw, J. W.
 Butts, W. H.
 Canfield, A. G.
 Cooley, M. E.
 Crittenden, A. R.
 Cross, A. L.
 Davis, C. O.
 Dow, E. W.

Edmonson, J. B.
 Finney, B. A.
 Ford, W. B.
 Glover, J. W.
 Hall, A. G.

Hauhart, W. F.
 Jackson, G. L.

Karpinski, L. C.

Kelsey, F. W.

Kraus, E. H.

La Rue, G. R.

Lichty, D. M.

Markley, J. L.

Meador, C. L.

Nelson, J. R.

Newcombe, F. C.

Pollock, J. B.

Rich, D. L.

Running, T. R.

Scott, F. N.

Scott, I. D.

Shull, A. F.

Tilley, M. P.

VanTyne, C. H.

Wenley, R. M.

Whitney, A. S.

Williams, N. H.

Winkler, Max

Winter, J. G.

Ziwet, A.

WESTERN STATE

NORMAL

Burnham, Ernest
 Everett, J. P.
 Harvey, L. H.
 Waldo, D. B.

WYANDOTTE

Frostic, F. W.

YPSILANTI

Hardy Carrie A.
 Ross, De Forrest

List of Members for 1920

ADRIAN

Armstrong, Mildred
Buck, Gertrude
Chamberlain, Lela
Foote, Frances
Hayes, Beatrice
Jewell, Agnes
Jones, E. M.
McNiel, E. W.
Marshall, Viola
Reed, E. J.
Tripp, George J.
Warren, A. C.
Willsey, Cora M.

ALBION

Head, W. F.

ALBION COLLEGE

Bless, A.
Goodrich, F. S.
Greene, C. W.
Harrop, A. H.
Hembt, P. H.
Kuhnes, E. L.
Pitkin, Orpha O.
Randall, D. L.
Sleight, E. R.

ALLEGAN

Engle, Allie M.
Gable, Helen
Howe, Alice
Sawyer, Lena

ALMA

West, F. E.

ALMONT

Snook, H. B.

ALPENA

Curtis, G. H.

ANN ARBOR

Adams, O. V.
Allen, F. P.
Arnold, Mrs. W. L.
Bennett, Ella M.
Benzin, Lina
Breed, Gertrude T.
Brown, Bessie
Brown, Ruth
Brownell, Ada
Butler, L. A.
Chute, H. N.
Culmer, Orpha C.
Dicken, Carrie L.
Donahue, Eileen
Dowler, Harriet
Downs, Lulu
Duff, Lela
Erb, Grace I.
Essery, E. E.
Extrum, Maude

Fischer, Selma
Forsythe, L. L.
Forte, Hazel
Frye, Mrs.
George, Louise
Gibbons, Winifred
Glasier, Lucy
Granville, Robert
Hamilton, F. G.
High, J. B.
Highley, A. M.
Hodson, Catherine E.
Hoyle, Edith L.
Hubbard, Kate C.
Inglis, Lois R.
Jocelyn, L. P.
Kirchhofer, Marie
Koffberger, Bernice
McMullen, Maude
McWilliams, Emma
Marschke, Emily
Neller, E.
O'Brien, Sarah
Osborn, Lurene
Palmer, Mrs. J. V.
Parry, Edna D.
Parry, Helen J.
Pielemeier, Mrs. W. H.
Plympton, Clara G.
Porter, Alice
Purtell, Catherine
Reinhardt, Flora
Rennie, Florence M.
Reynolds, Jane
Robison, Cora
Russell, Josephine
Samuelson, A. H.
Savery, Jennie B.
Schaible, Ida M.
Sink, Maude F.
Skinner, Irene
Slauson, H. M.
Springer, D. W.
Stark, Evelyn
Steele, Anna B.
Stevens, Marjorie
Stitt, A. C.
Sturgis, Christine
Sturgis, Doris
Sturgis, Marchie
Tichnor, Frances
Tinkham, Lona C.
Van Kleek, Mabel
Walsh, Florence
Walter, Augusta
Weinmann, Louise
Welton, Mary L.
West Jeanette S.

Wines, L. D.
Zampiere, P. S.

BAD AXE

Vanden Belt, B. H.

BATTLE CREEK

Atkinson, H. R.
Baker, H. W.
Bray, E. A.
Cannon, Laura
Cleveland, May
Coburn, W. G.
Cooper, Lenna F.
Hall, Margaret E.
Krell, Carrie
Marburger, W. G.
Price, G. G.
Rieger, L. G.
Shuart, W. L.
Whelan, Gladys

BAY CITY

Butterfield, G. E.
Lord, Henerietta
Sharpe, E. M.
Ten Eyck, H. E.

BELDING

Reed, A. J.
Skinner, S. J.
Stowe, Marian

BELLEVIEW

Clark, Genevieve

BENTON HARBOR

McCowen, Grace A.

BIRMINGHAM

Toothacker, W. S.
Vliet, Clarence

BLISSFIELD

Page, J. S.

CALUMET

Walsworth, A. M.

CENTRAL NORMAL

Barnard, Anna M.
Calkins, R. D.
Kelley, John
Larzelere, C. S.
Pearce, W. H.
Rosewarne, Nellie
Rowe, E. C.
Warriner, E. C.

CHARLOTTE

Savage, S. P.

CHEBOYGAN

Perry, K. J.
Titus, Carl

CHELSEA

McCloskey, J. E.

CHICAGO, ILL.

Johnson, H. M.
Moody, E. G.

CLARE
Gullen, L. S.
CLEARY'S BUS. COL.
Cleary, P. R.
COLDWATER
Bannister, Mabel
CONSTANTINE
La More, Ethel B.
DEARBORN
Adams, R. H.
DETROIT
Allen, Maude
Arbury, F. W.
Barns, B. A.
Berkaw, G. R.
Beverley, Clara
Boyer, C. J.
Cody, Frank
Courtis, S. A.
Egan, Nora L.
Fletcher, D. H.
Frederick, O. G.
Guysi, Alice V.
Kepler, F. R.
Lightbody, Wm.
Merrill, John
Newman, A.
Shaw, Edith
Shaw, E. R.
Shaw, Lena
Spain, C. L.
Stevens, Mrs. F. B.
Thompson, Gladys L.
Trybon, J. H.
Twiggs, T. P.
DET. CASS TECH.
Certain, C. C.
Comfort, B. F.
Cooke, C. S.
Farnswarth, Mary F.
Keal, H. M.
Linton, Ellen
Livingston, Helen
Richmond, J. B.
Wilson, Louise B.
DETROIT CENTRAL
Baldwin, J. W.
Bammel, Grace
Bates, F. O.
Bird, E. J.
Bishop, Helen L.
Bowerman, C. B.
Brown, Jessie
Brown, J. S.
Carter, G. W.
Chase, Ethel W. B.
Coats, R. J.
Collins, J. A.
Conover, Kate B.
Copeland, Cornelia A.

Craig, N. E.
Cunliffe, R. A.
Darnell, Albertus
Davis, D. H.
de Gomars, J. A.
Gee, E. F.
Harrah, Grace E.
Hawley, Elizabeth, W.
Hine, Katherine G.
Hopkins, Florence M.
Hull, Isabella H.
Irland, Helen
Irwin, F. C.
Jones, Grace E.
Lennon, Mary E.
Levin, S. M.
Lowry, Florella R.
Mackenzie, David
Malcomson, Rachel A.
Mutschel, Matilda
Nielsen, N. C.
Rhines, Minerva B.
Richardson, Ruby E.
Sargeant, Charlotte H.
Sickley, C. E.
Stocking, W. R., Jr.
Stoll, N. R.
Tatlock, O.
Thompson, E. C.
Thompson, Margaret
DET. CITY NORMAL
Connely, Mildred M.
Conover, L. Lenore
Jackson, Nellie L.
Lindquist, Lily
Thomas, J. F.
Worden, Orpha E.
DETROIT EASTERN
Chamberlin, Louise F.
Cook, Frances C.
Foster, Christine
Frazier, J. W.
Frye, W. J.
Fuhry, Edw. G.
Harvey, Caroline C.
Kaye, Elizabeth
Linn, Flora R.
Mann, L. B.
Marsh, Florence A.
Merriam, A. R.
Pettee, Edith E.
Putnam, R. R.
Smith, E. H.
Strubel, R. H.
Van Auken, Blanche
Waterbury, M. G.
Wood, Mabel
DET. NORDSTRUM
McMillian, D. W.
Marsh, Alice Louise

Murdock, G. W.
Seaver, O. G.
DETROIT
NORTHEASTERN
Cooper, L. G.
Cox, W. H.
Fyan, Lila
Kimball, Ethel M.
Raycraft, R. E.
Spriegel, Gladys S.
DET. NORTHERN
Bartlett, A. E.
Bechtel, G. G.
Isbell, W. N.
McGrath, A. S.
Miner, Mary L.
Rolfe, E. C.
Schaible, Clara K.
Tanis, J. E.
DETROIT
NORTHWESTERN
Alley, Sadie M.
Ashleman, Paul
Burkheiser, Anna
Carey, Eleanor J.
Clough, Susanna A.
Galvarro, M. S.
Holmes, Mrs. Mary F.
Jerome, M. D.
Jones, A. F.
McNally, J. V.
Miller, E. L.
Porter, J. E.
Rivett, B. J.
Roehm, Dorothy
Twitchell, R. D.
Wentworth, W. H.
DETROIT
SOUTHEASTERN
Beebe, Faye
Carr, Henrietta
Converse, Helen J.
Corns, J. H.
Douglas, Catherine
Mac Farlane, Flce A.
McFarland, Janet
Palmerlee, E. Grace
PHELPS, Nancy S.
Renton, Marie H.
Whitney, Edward
DETROIT WESTERN
Bowker, Lucy E.
Cameron, N. A.
Chapman, I. E.
Coughlan, Nina
Edmonds, G. P.
Frutiger, Marie L.
Harper, Susan
Hempsted, Joanna K.
Hickok, D. W.

- Holmes, F. H.
Kerns, Martha
Kibby, C. G.
Liskow, Julia M.
Meiser, Augusta B.
Parker, Flora E.
Pitts, Dora H.
Prange, Ellen M.
Roper, Gertrude L.
Scott, Margaret E.
Seeley, Ruth H.
Seiffert, Berthold
Sturm, Alice K.
Waples, Marcia P.
Weir, W. W.
Wilkinson, A. O.
Willoughby, Ruth A.
Wiltsie, Katherine D.
Woodward, Mabel C.
Young, H. M.
- DETROIT WILKINS
SCHOOL OF COM-
MERCE**
Banfield, Lois R.
Bowles, Mabel G.
Caldwell, Jessie M.
Cross, Genevieve
Rich, L. H.
Schell, H. G.
Stowell, B. D.
Tilton, N. Edith
- DEXTER**
Durfee, E. N.
- DOWAGIAC**
Mead, A. R.
- DRYDEN**
Towle, W. G.
- DURAND**
Goudy, W. S.
- E. LANSING (M.A.C.)**
Bessey, E. A.
Edmonds, Mary E.
Faust, Hilda
Ford, B. J.
Frazer, Elizabeth J.
Gettemy, Winifred
Morrison, Edwin
- EAST TAWAS**
Callan, C. C.
- EVART**
Kinney, F. H.
- FENTON**
Lyons, D. F.
- FERRIS INSTITUTE**
Ferris, W. N.
Wainwright, Mrs. K.
- FLINT**
Burrett, Grace
Cody, A. N.
Gifford, Helen
- Kern, Phyllis M.
Lindell, Selma
McKinney, Helen
Mayer, S. G.
Nutt, H. D.
Owen, Edith C.
Parmelee, L. S.
Puffer, W. J.
Rosenthal, Rachel
Russell, W. J.
Scharmach, W. J.
Watkins, Edna
Wellwood, J. E.
Williams, Bertha A.
- FORD CITY**
Pike, Chas. F.
- FREEMONT**
Dell, Ruth
- GAYLORD**
Barnum, C. J.
- GLADWIN**
Chadwick, G. E.
- GRAND RAPIDS**
Baldwin, Mary F.
Ball, Fanny D.
Bennett, J. G.
Bettes, Addie E.
Bettes, Lucy M.
Broom, Amy L.
Burbank, Elizabeth
Coye, Carrie M.
Eaton, Mary M.
Ellis, Grace F.
Frazee, G. B. Jr.
Gallmeyer, Luella
Gilbert, I. B.
Greeson, W. A.
Harden, Mary
Hinsdale, Mildred
Holt, Alicent
Hootkins, Hirsch
Hughes, Charlotte C.
Hulst, Cornelia S.
Knoll, M. E.
Krause, A. W.
Lindberg, Anna E.
Lussky, Alma
Peliken, G. F.
Reid, E. S.
Stearns, Frances L.
Truesdale J. C.
Van Buren, Agnes
Vreeland, E. F.
Waring, Eloise E.
Wilson, Angeline
- GRASS LAKE**
Glas, A. W.
Shadford, Lillian
- GRRENVILLE**
Straight, C. F.
- GROSSE POINT**
Jarvis, Isla A.
Stockham, Charlotte
- GWINN**
Stewart, L. W.
- HAMTRAMCK**
Clark, A. H.
Kalder, A. A.
- HARTFORD**
Boss, C. A.
- HASTINGS**
Ehle, C. E.
Mann, Rubie
Wallace, W. T.
- HIGHLAND PARK**
Altenburg, G. I.
Babcock, Lulu
Bacher, Mildred
Beebe, A. H.
Belser, Leona M.
Brown, J. L.
Daley, H. C.
Dorsey, C. L.
Fenstermaker, H. F.
Hildner, Euthymia
Irwin, Ruth
Kirkendall, George
Knapp, T. J.
Locke, J. R.
Long, Margaret
MacDonald, Isabel
Mansell, Edith
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JOURNAL

OF THE

Michigan Schoolmasters' Club

FIFTY-SIXTH MEETING

Held in Ann Arbor, March 31, April 1, 1921

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TABLE OF CONTENTS

	PAGE
Function of Music in Education..... <i>R. L. Baldwin</i>	7
Homogeneous Classification of High School Children According to Ability Shown on Psychological Tests..... <i>W. D. Reeve</i>	18
The Foundation for More Work in Chemistry..... <i>W. G. Smeaton</i>	27
The Cause of Failures in Mathematics in the Colleges of Engineer- ing and Architecture <i>L. J. Rouse</i>	35
Business Meeting	42
Program of 1921 Meeting	47
List of Members	61
Advertisements	75

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Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-SIXTH MEETING, HELD AT
ANN ARBOR, MARCH 31, APRIL 1, 1921

EDITED BY THE SECRETARY

FUNCTION OF MUSIC IN EDUCATION

RALPH L. BALDWIN, DIRECTOR PUBLIC SCHOOL MUSIC, HARTFORD, CONN.

In appearing before you to speak on the subject, "The Function of Music in Public Education," I beg that you will not consider my remarks as the utterances of the attorney for the plaintiff, else much of what is said will be discounted as coming from a professional musician of biased or prejudiced opinion. I shall try to approach the subject from the standpoint of the parent, citizen, educator, rather than from the point of view of the professional musician for our interest is not in music as such but rather in education; in other words how may music contribute toward true education, or how may we educate through music.

First, let us hear from Plato upon the place of music in education: The following extract is taken from his "Republic," Book III:

"We would not have our guardians grow up amid images of moral deformity, as in some noxious pasture, and there browse and feed upon many a baneful herb and flower day by day, little by little, until they silently gather a festering mass of corruption in their own soul. Let our artists rather be those who are gifted to discern the true nature of beauty and grace; then will our youth dwell in a land of health, amid fair sights and sounds; and beauty, the effluence of fair works, will meet the sense like a breeze, and in-

sensibly draw the soul even in childhood into harmony with the beauty of reason. * * *

"Is not this, I said, the reason, Glaucon, why musical training is so powerful, because rhythm and harmony find their way into the secret places of the soul, on which they mightily fasten, bearing grace in their movements, and making the soul graceful of him who is rightly educated, or ungraceful if ill-educated; and also because he who has received this true education of the inner being will most shrewdly perceive omissions or faults in art and nature, and with a true taste, while he praises and rejoices over, and receives into his soul the good, and becomes noble and good, he will justly blame and hate the bad, now in the days of his youth, even before he is able to know the reason of the thing; and when reason comes he will recognize and salute her as a friend with whom his education has made him long familiar.

"Yes, he said, I quite agree with you in thinking that these are the reasons why there should be a musical education."

The effect of civilization's amenities are not fully seen until barriers are torn down and dread and terror are loosed to ride a mad race with force and brutality. What man can endure was shown by the war. He walked in towns of falling towers and tottering buildings, his brain numb with the noise; he reeled and staggered while his fellows were shot down around him; dread laid strangling hands upon him, but did he get away from it for a moment's respite, he craved music. He craved other things, but music was an alleviating force; something to make him forget. Was he ever so "fed-up" music could arouse him. At times it actually saved him. When the will-to-live was almost spent and there was no more care for what happened, the feeble piping of a penny whistle would stir him to effort and his dog-tired limbs would move; he would "carry on."

The craving for music was revealed by many incidents on the battle fronts, and prominent among the men who noted actual happenings was Philip Gibbs, the English war correspondent. Gibbs says:

The Magic of a March

"When our troops went out—the 'Old Contemptibles' I mean—they weren't allowed to take their bands with them. They were used to music and they craved it. During the retreat from Mons one battalion had been on the march day and night for about a week, without sleep. Fighting their way back was the job of these men and they became so tired that finally they just threw themselves down in a village street. It seemed that nothing would move them. 'If we are going to be captured by Germans, all right,' they said. 'We want to go to sleep now. We're absolutely done in!'

"The officers could do nothing until finally one of them discovered a little toy-shop in the village. He bought out the whole stock of toy drums and tin whistles and got hold of some of the ex-bandsmen to play them. It was an old march they played—'The British Grenadiers.' But it was music

to those tired men. They raised themselves and struggled on, and they fought again."

Afterwards, when the armies had dug themselves in, and before the question of bands had occupied the organizing minds, the craving for music expressed itself, often with queer results. The men, Gibbs says, seized eagerly upon anything that promised to yield a tune—a penny whistle, a mouth organ, a comb and tissue paper through which to hum. Combs and tissue paper became as important in the lives of the "Old Contemptibles" as bayonets and cordite.

"The officers were very keen on anything that would produce what might be called music," Gibbs related. "In some of the regiments they encouraged regular organizations. The Scots Guards had one of these bands, and one night they gave a concert in the front line trenches and played a lot of old English tunes. The enemy's lines were quite close then—sometimes the trenches were only four and a half yards apart—but there was no interruption. The Guards went on with their program, and presently a German officer raised himself above the parapet. No one shot at him and he called out to the band to play 'Annie Laurie.' They gave him the old song and he sang it beautifully. Next day there was a terrific 'strafe' on and the men who had indulged in musical friendship proceeded to kill each other with great energy."

The Pipes of War

The war was not very old before serious attention was given to music for the men, and many a famous British band was sent across the Channel. "These bands," said Gibbs, "could not come anywhere near the trenches, but they gave great joy to the men behind the lines. With the pipers it was different. The Scots actually went into battle with their pipes. I myself have seen them and heard the skirl of the charge, one of the most terrible noises imaginable. I have seen them coming out of battle too, with their battalions thinned down to hardly anything; with one lone piper leading back a division—on the field of the Somme it was—playing the old Scottish dirge, 'Flowers of the Forest.'

"All through the war the music of the pipes was the music of battle. At night, on almost any old road of war, you would hear their sound. The English soldiers came to love them. Intensely these men at the front craved music and it was their one great source of refreshment. When they came out of the lines they used to organize themselves into little concert parties, and how these tired men would be refreshed by their music!"

These quotations represent two widely divergent views regarding the educational values of music and I have chosen to give them because they represent views of men outside the field of professional music.

It may be said that the object of education is to develop character; to create efficiency for work; to provide capacity for enjoyment. With these objects in view is the curriculum made and time schedules for the various

subjects arranged. This should lead to a scientific evaluation of the various topics in the curriculum and a weighing of the relative educational values.

From the standpoint of business efficiency, our primary and secondary education is open to a rather severe arraignment; first as regards the building of the school curriculum; and second, as to our meager knowledge of the manner in which our education functions in the life of the people who go out from our schools.

The curriculum of the primary and secondary schools is not a result of scientific study and investigation. It is an accumulation of a century of practice. To tell the truth it has grown up like "Topsy." Programs of time allotment for the various subjects in public education are made largely upon a hit-or-miss plan with very little real idea of the relative value of the different topics for study and with almost no scientific basis.

We have meager knowledge of the manner in which our public education is really functioning in the lives of the people of our communities. We are trying to manufacture a finished product like a great industry without ever examining or inspecting the completed article. How different this is from ordinary business. What pains manufacturers take in the inspection of the finished product. How much money is spent and how much care exercised in examining the output of a factory. There are but very few isolated places in the country where there has been any attempt to determine how the plan of public school education is working out in the lives of the people. If our Hartford insurance companies plan to issue a new form of policy, they search the country and sometimes the world for data. This is laid on the desks of the actuaries for study and a scientific basis for the premium rate is finally reached after long research and calculation.

If we could only find out how our education is functioning in the lives of the people, we would determine what the needs of the community are and this in turn would assist in making a curriculum that would fit the needs of the community. Then the various subjects could be evaluated in the terms of these needs and a definite program of time allotment would result, which would be based in part, at least, upon scientific data.

But even without this data, more could be done in definitely fixing the educational values of the subjects now included in the school curriculum and this would tend to correct some disparities that now exist in our scheme for public education.

This I have attempted to do with the subject of music.

Before attempting to define the educational values of music, it must be recalled that music is at once an art, a language, and a science. I shall pass by a detailed discussion of these three phases of music notwithstanding the allurements of the subject, to arrive at something more specific, practical, and at present more important.

To be more definite, music possesses the following educational values: ethical, cultural, aesthetic, emotional, intellectual, social, physical, vocational.

Ethics

First of all, music is a spiritual force and as such it has a direct bearing and a subtle influence on life and conduct. The record which music made during the course of the war is too recent an experience to call for extended comment. It was music which was largely responsible for holding true the morale of the people during the darkest days of the struggle. Everyone in this presence will recall the constant and extended use made of music during the time of rallies and drives. Every state and community had its music committee and council. I am proud to record that Connecticut was the first state to appoint a music director under the council of defense early in 1917. The wonderful effect which music produced at our meetings in Connecticut during that trying period seems like a dream but it was very real at the time.

Music has been extensively used in connection with industry to produce emotional steadiness. It has received the endorsement of hundreds of leaders in industry as being a vital force in contributing to the contentment of the people. You will recall that places which have taken a leading part in promoting music for the masses and especially in bringing music into the industrial establishments, have been relatively free of strikes and disorders during the trying period of readjustment. It seems as if strikes were unknown in Flint, at least so far as information has reached the outside world.

Music has always had a restraining and cultivating influence in the home. The beneficent effects of music in the home were recognized centuries ago. From the headquarters of the Federal Bureau in Washington, we are hearing much in recent days of the Slovak philosopher and educator of the 17th century, and one of the sayings of Comenius largely quoted is this: "Blessed is the home where voices resound with music."

In Hartford we hold that the school assembly is the place where music exerts one of the strongest influences. We have assemblies in nearly all of our grammar schools every week as well as in the high school. We feel the need of these assemblies in this big center of urban life to teach the children many lessons that may be learned only in the big meetings of students. Here is offered the opportunity to practice cooperation in a common cause, to work together for a common end which to us means school spirit and in later life civic spirit. In these assemblies, music plays a tremendous part. It offers the medium in which all of the students work together. It voices the emotions, arouses the enthusiasm, quickens the impulses, gives life and fervor to the school and all of its activities. How the students love it! Take music out of our assemblies? These meetings would be dead without it. The students would not stand for it. The whole school goes out of the assembly period with a song on its lips and in its heart and would you argue that this spiritual force, unseen but nevertheless real, has no effect upon the conduct of the students? Our assembly music touches almost every educational phase and value but I count its ethical effect one of the greatest benefits. Many a school man will scoff at this statement, claiming that it is

the merest conjecture. This same educator will belittle the ethical effect of music anyway because it cannot be measured. Thank heaven there are some things in education that defy yardstick measurement. True it is that you cannot say that a student has received from the given assembly period two pints of ethics, but many of us close to students in school and in the home are perfectly conscious just the same of the ethical effect of music for we find many tangible evidences.

Culture

Music is itself a liberal culture especially as it touches so many other subjects in such a vital manner. Music is constantly associated with religion, literature, history, and geography.

I can fancy that a school master might say, "Of course music in its higher realms or in an advanced stage of development is correlated with many of these elements of culture mentioned, but how does it affect the school work?"

Music is constantly associated with religion in the life of a school. Outside of the periods for devotional exercises in which hymns of the church may be constantly used, scarcely a week goes by when music and religion in some form are not found present in the school room. A part of our high school program calls for the performance of such works as Haendel's "Messiah," Mendelssohn's "Elijah," Haydn's "Creation." Excerpts from these works are also found in the music for the grade schools and in teaching music, many are the times when knowledge of the Bible and sacred literature is called into play.

Music is also constantly associated with great literature. Not only are all of the greatest poets represented in the texts of the songs which are used in schools but there are particular connections between such works as "Midsummer Night's Dream," Milton's "Paradise Lost," Byron's "Manfred," Scott's "Lady of the Lake," and other works.

In the school music there are constantly references to matters of history, European and American. There are the songs of Bunker Hill, Paul Revere's Ride, Battle of Saratoga, songs of the Civil war, The Two Grenadier's with Heine's poem and Napoleon's unfortunate campaign, the Overture of 1812 by T'schaikowsky, and many other historical illusions. The minute the field of folk songs and patriotic songs is entered, the study of geography, climate, manners and customs of the people is demanded, all of these things being reflected in the music.

Emotion

Music is one of the few subjects in the curriculum which arouses, stimulates and develops emotion.

It is not necessary to amplify the thought that all human acts are initiated with some emotion. But mention should be made of the need for the development of emotion as a spiritual, regenerating force in human life.

Poor indeed is the soul whose emotional stimuli are so far atrophied that they will not react to the beauties of a gorgeous sunset, or to the uplifting influence of a great poem, symphony, or sermon. Is it not through the quickening of a sensitive emotional nature that one is raised into the realm of the spiritual where the soul sees visions of the beauties that are to be. Is this not one of the greatest regenerating forces in life, indeed without it would life be hardly worth living? It is not strange therefore that music has such a hold on humanity for it is chiefly a language of emotion, living just beyond the border of realities, leading humanity into realms of spiritual beauty.

These attributes of music,—ethical, cultural, and emotional,—that have been mentioned deal with music as an art and function in the development of the individual for enjoyment and as an important factor contributing to happiness.

Intellectual

Educated men have long had a fairly good idea of and respect for the spiritual qualities of music but it is only until recently that educators have come to realize the intellectual values of music as a common school subject. Respect for the intellectual qualities of music has been more prevalent as a popular instinct among the masses of people than among the scholastic circles. This is shown by the great demand on the part of the parents for the musical education of their children on the one hand, and the tardy recognition of music as a scholastic subject in higher institutions of learning on the other.

One of the supreme needs of music education is a thorough intellectual training. There is danger in that kind of music education which arouses the emotion but fails to train the intellect. Without the guiding, governing power of the intellect, emotion may run riot and degenerate into mere hysterics. There can be no deep appreciation of the best in music without an intellectual approach. To appreciate music completely, to receive the real message which music has to contribute, it will not suffice for a person merely to place himself in the presence of music, to expose himself to music as it is performed, and in its presence to listen to it passively like a dog basking in the sun. There should be a complete knowledge of the architectural features of the art, a knowledge of the musical form upon which the music is based which should exist as a subconscious background. Then there should be a knowledge of the evolution of music as an art; the various styles of composition; the literature, history and geography bearing upon the work in hand. All of these things and more are required to fully appreciate the emotional and spiritual message which music in its highest forms would deliver.

In our music work in the public schools, the first attempts at intellectual training should be secured through the teaching of music fundamentals applied in music reading. A high standard of attainment in music reading demands intellectual qualities of the highest order.

It is always difficult to impress or convince one of the educational values of music who has had no experience with these values. It is like attempting to talk religion to a person who has never had any religious experiences. To attempt to impress one with the great spiritual uplift of a great emotion who has never experienced the regenerating force of such a message is courting the impossible.

It is equally difficult to point out the details of the intellectual demands made in the reading of music to one who has never had any experience with the task of music reading. Yet I am going to enumerate some of these details.

Music reading demands the keenest kind of sense perception,—eye and ear training,—in itself a most valuable educational asset as you know if you have followed President Eliot's philosophy on the value of sense training in education. Next follows the development of the memory of tone, a mastery of the vocabulary of sound; then the development of the memory of sound in motion,—that is the time and rhythmic features of music,—the vocabulary of sound in motion; then there is required an expert reasoning,—the forming of conclusions from the premises presented by the printed notation; then the will power is called upon to translate the printed symbols into audible language.

The performance of music requires an intensified concentration found in almost no other human experience to quite the same degree. Here is required the power to combine several different mental acts simultaneously, without delay or hesitation owing to the rigid demands of the beat, or constantly recurring pulse of the music.

When you hear a child read a new piece of music correctly, notes and words, you admire the skill, but are you conscious of the intellectual demands made by the act? Are you aware that the child is performing four or five mental acts at once? These may be summed up under the following headings: Ability to sing; to read the notes; to read the time; to read the words; to sing with expression.

In passing, some thought should be given to the number and range of fundamental principles which must have been mastered to make such a result possible; keys, key signatures, scales, chromatic tones and signs to represent them, time signatures, measure structure, durational value of notes and rests requiring a definite and important correlation with arithmetical values, knowledge of tonal relationships, and of the common terms for speed and expression. Besides all of this, there must be the ability to read words at the same time.

The performance of music requires facility and speed of intellectual processes which are exacting in their demands, of rare accomplishment, and of superior educational value.

Mention should be made in passing of the demands made upon the individual for self control in the performance of music, especially if applied to solo performance and much of our work in school may be solo singing or an approach to it. The amount and quality of intellectual training se-

cured through music in schools depends largely upon the methods by which it is presented, the plans by which it is administered, and the standard of attainment required.

Social

I am sure that it is not necessary for me to take time to elaborate upon the value of music as a social agency for good. You are familiar with the use of music in the churches and in the home. You know the value of music as a feature of entertainment in all public meetings and private gatherings, and how much is made of music among the young people in their meeting for social intercourse.

It remains to be said however that the schools should do much more than they are doing in the teaching of appreciation of music. There is abundant need of training in appreciation of real music,—the kind that has real spiritual and inspirational character, rather than the kind that is merely nervously stimulating.

Physical

How many singers of your acquaintance have suffered from tuberculosis? Have you ever known of a singer being thus afflicted? An expert in the care of this disease in Connecticut has recently published a course of treatment which has for its basis deep breathing.

All singing is a physical exercise of the most healthful kind. Here is a value of music in schools that is often overlooked but which, of course, does not call for extended comment.

Vocational

Taking the country at large, there is a rather big company of people devoting their lives to music work in one form or another. Some thought should be given to the proper training of these students passing through our schools who are to become the musicians, performers and teachers of the future. Courses in domestic science, manual training, industrial training are now offered in schools. Equal opportunity should be offered students who wish to develop their talents in music. Encouragement should be given to instrumental training and the schools should offer an opportunity for instrumental practice through the organized orchestras and bands. The high schools should offer advanced courses of training in music equal in scope and value to those presented in other cognate departments.

Do you know how many children in your communities are studying music with private teachers at private expense. We have been familiar with these facts in the city of Hartford, Conn., for many years, and the public opinion thus expressed has had an important influence in the development of the music work in the public schools. Last December, we found that one-fourth of the entire public school population in the grammar grades was engaged at that time in the outside study of music under private teachers. In the seventh and eighth grades, it was found to be a third of

all of the children of those grades, running as high as 43 per cent in some schools. In the high school, over half of the entire student body of about 3,300 are engaged in music study outside of school. In face of this public opinion, it goes almost without saying that we offer in our high school credit for this outside work in music. It is estimated that this private study of music in the city of Hartford on the part of school children amounts to well over \$100,000 a year expended by the parents. This amount of money spent for music study alone probably represents a larger sum than that expended for all private study of all other subjects together.

In the teaching of music in the public schools, there are four important phases of work that should be carried on, as follows: First, the teaching of music fundamentals to be applied in the teaching of music reading; second, voice training; third, musical interpretation; fourth, cultural training and the development of musical appreciation. These are almost of equal importance and none of them should be neglected.

The teaching of music fundamentals and music reading includes all of those elements of intellectual training that have been mentioned.

Voice training includes those elements of aesthetics which have to do with the beauty of tone as a vehicle for musical expression.

Musical interpretation includes a study of the emotional content of the music, the elements of emotional expression, having to do directly with the development of emotion and of the appreciation of the spiritual message of music.

The cultural study should include knowledge of musical form, musical history and biography, and information regarding those other subjects which are so closely interrelated with music, namely religion, literature, history and geography.

If all of these four phases could be successfully presented in public education and a high standard of results secured in each department, what a large and significant contribution to education music would be able to make in the upbuilding of character, in the training for efficiency for work, and especially in the development of the capacity for enjoyment.

I Am Music

Servant and master am I; servant of those dead, and master of those living. Through me spirits immortal speak the message that makes the world weep, and laugh, and wonder, and worship.

I tell the story of love, the story of hate, the story that saves and the story that damns. I am the incense upon which prayers float to Heaven. I am the smoke which palls over the field of battle where men lie dying with me on their lips.

I am close to the marriage altar, and when the graves open I stand nearby. I call the wanderer home, I rescue the soul from the depths, I open the lips of lovers, and through me the dead whisper to the living.

One I serve as I serve all; and the king I make my slave as easily as

I subject his slave. I speak through the birds of the air, the insects of the field, the crash of waters on rock-ribbed shores, the sighing of wind in the trees, and I am even heard by the soul that knows me in the clatter of wheels on city streets.

I know no brother, yet all men are my brothers; I am the father of the best that is in them, and they are fathers of the best that is in me; I am of them and they are of me. *For I am the instrument of God.*

I Am Music

HOMOGENEOUS CLASSIFICATION OF HIGH SCHOOL CHILDREN ACCORDING TO ABILITY SHOWN ON PSYCHOLOGICAL TESTS.

W. D. REEVE, UNIVERSITY HIGH SCHOOL, UNIVERSITY OF MINNESOTA

One of the most interesting and most important problems connected with secondary school work today, is the problem of individual differences in ability among high school students. It has taken the educational world a long time to appreciate fully the fact that great differences among individuals exist and in many respects, at least, we are not yet fully aware of their significance. Three questions face us at the outset when we attempt to consider this problem, first, "What are the best methods of discovering these individual differences?" Secondly, "How great are these differences?" and Thirdly, "What are the best methods of handling these differences, once they are discovered?"

It goes without saying that a great many teachers, sooner or later, discover very marked differences in ability among pupils of varying chronological ages in the same class, and also between pupils of the same chronological ages in the same class, but often these differences are not discovered for some time after the teacher is given charge of the class. This is especially true nowadays, where in so many schools, the classes are seriously overcrowded. In my opinion this constitutes one of the most serious and trying problems with which we have to deal and I, for one, believe that we must make a serious and determined effort to get at the problem at once or run the risk of enormous losses in our educational output in the next generation. The problem of making every child the right kind of citizen is largely a problem of education. Each child should be given the opportunity to exercise his ability in the way which will permit him to achieve his fullest development. This, I believe, cannot be done in the majority of classes in the schools of this country today. It is this failure to recognize and to handle individual differences of ability among high school students, that gives rise to the large and unwarranted number of failures in many of our high school subjects.

For my own part, I am ready to say that it is consummate folly to attempt to teach the best ten percent of a normal distribution of high school children (say, in the first year) with the poorest ten percent of the same group, without doing an enormous injustice to both, and I doubt whether it is possible even to teach them together at all, in the best sense of the word.

I say this in spite of the fact that it is probably true that there are few, if any, children in the high school who would rank below C—in the Army Alpha test. This is using the scale A+, A—, A, B+, B—, B, etc.

It has not been an uncommon experience for me to find a boy in a class in trigonometry who could solve five oblique triangle problems while another boy of the same age and in the same class could solve only one. Any teacher who questions this can, if she will, find many similar examples by testing out a normal high school class where no selection based on ability has been made previously.

Three years ago, at the end of the year, I gave an examination in mathematics to a first year class. The examination was made to cover one hour and thirty minutes. At the end of thirty minutes, one boy in the class brought his paper up and asked me if I had another examination like the one he had just taken. The boy was simply having a good time and wanted to continue. This was so unusual a happening that I was nonplussed for a minute, but after some thought I gave the boy the final examination of the year previous, which he finished before anyone else in the class was through with the first examination referred to.

The rest of the story is that some pupils were not through the examination even at the end of one hour and a half. How can one expect such widely different abilities to be geared at the same rate as is so often the case?

The boy referred to above is a good example of what the brilliant child can do. The danger in our failing to realize the importance of giving him a chance to use his power wisely is brought out in a reference made to this boy in an article by Professor M. E. Haggerty in *The Seventeenth Year-Book of the National Society for the Study of Education*, p. 29. In describing this particular boy, he says, "Robert was twelve years old, beginning second semester of eighth grade. His teachers reported him indifferent, doing only ordinary work and inclined to be the center of schoolroom disorder and organized insurrection. Parents noted that, though previously much interested in school, the boy now disliked to attend; he disliked the teachers and wanted to drop out. Robert insisted that the studies were not interesting, that he knew all he wanted to know about them already. Mental examination showed an intelligence quotient of 142, a mental age probably greater than that of some of his teachers, who bored him to death by treating him as an ordinary twelve-year-old. He was recommended to high school, entered three weeks late, led his class at the end of six weeks and at every subsequent interval when marks were given. More important, his whole attitude toward school was changed, because the advanced work was a real challenge to his mental ability."

I had this boy in my mathematics classes from the beginning of his freshman year until he left our school at the end of his junior year because his parents were leaving the city. I have never had a more desirable

student in any of my classes. His marks for the time he was in the University High School are as follows: 14 A's, 8 B's and 2 D's. The D's were made in shop and drawing, two subjects in which I must confess this unusual boy seemed to have little or no interest. In fact it is an interesting fact to note that many of the low grades made by brilliant students are in shop and drawing and many of the high grades made by the slow students are in shop, drawing, art, home economics and the like. I doubt, however, if this is a surprise to many of you who know both types of children.

As far back as 1914-15 while I was teaching mathematics at the University High School in Chicago, I divided my first year people into two sections upon the basis of ability shown in their mathematics work. But this was after more or less difficulty in trying to teach them together. The results of the division made at that time convinced the writer that the plan was very desirable. However, if such divisions can be made at the very beginning of the year, much time and energy can be saved for the teacher and the students will be much better trained. In those days the plan of giving intelligence tests was not so much in vogue.

The results of the intelligence testing in the army are now so well known to most of us that we are all convinced that great differences of ability exist in all normally well distributed groups. The method of discovering individual differences in ability by giving intelligence tests seems to me now to have become so generally accepted as the best available method that I shall not attempt to present any argument to show why they should be used, but shall take it for granted that although we all realize there is a great deal to be done in improving and perfecting these tests, we all know that most of the modern tests are much better than anyone teacher's judgment would be. I think it was Dr. Thorndyke who said that "we get about 60% correctness from the tests—the rest is moral, health and social." We can get tests now, therefore, that for purposes of rough classification, at least, are very useful. This is the first use that we can make of our knowledge of individual differences. The second use that we may make known of differences in ability or in intelligence quotients is that of predicting what the individual will do in future work. In this respect we can probably predict from the results of a so-called "battery" of tests which may cover from, one to three or four hours time what a student will do in his subsequent school work almost as well as we can predict from his first semester's marks what he will do in the second.

This seems to argue that we can take for granted that we now have tests by means of which we can classify children in basis of the tests and then make fairly accurate prediction as to what they will do in their school work.

I think we must admit, however, that no one has developed a test or "battery" of tests that will tell us whether the student has the proper amount of industry in his make up — the thing we commonly refer to as

"sticktoitiveness." This leads me to the third use to be made of a knowledge of individual differences,—namely, what has been called "educational justice"—what I should call using the knowledge one has of a child's ability to make him do something near the type of work of which he is capable. For example, we have in our senior class this year two girls. The first of these girls has an I. Q. (Intelligence Quotient) of 120 and she has marks totaling 73 points up to the present time. These points are obtained by assigning values to our marks as follows: $A=4$, $B=3$, $C=2$, $D=1$ and $F=0$. For want of a better term let us call the ratio of the total number of marks the first girl received to her I. Q. her "Efficiency quotient." Then for the first girl we get an efficiency quotient of $73/120$. In the case of the second girl we find a total of 91 points for marks and an I. Q. of 87 which gives an efficiency quotient of $91/87$. One need not stop to explain which girl is giving the biggest returns. Any school is justified, I think, in bringing pressure to bear in the case of the first girl and perhaps we should also be more careful than we have been in recognizing the excellent work of the second type referred to above.

May I now give a sort of historical survey of some of the things that have been done at the University of Minnesota High School at Minneapolis, since the Autumn of 1917, in the way of classifying students, together with some of the outstanding results of such classification.

At the opening of the University High School in 1917, Dr. W. S. Miller, the principal, gave three psychological tests to all incoming Freshmen. These tests were given to all of the children at the same time, on Saturday before school opened on Monday. These tests were scored and the students grouped into brighter and slower sections on the basis of the results. Since the tests were not absolutely accurate and the division was arbitrarily made at the middle point of the entire group it is clear that some of the children in the slower group may have been just as capable as some in the accelerated group. In the case of a large group the more sections one has the less chance for large differences in ability between the top of one group and the bottom of the next higher group. In our own school we do not have enough freshmen to warrant more than two sections.

Mr. Miller nowadays gives the tests to the candidates at the end of their eighth grade work so that the results can be worked out and class lists ready before time for school to begin in the fall.

The three tests given in the fall of 1917 were Trabue Completion Test Scale L, Omnibus test I B and an Analogies test of 20 Analogies.

Since the three original tests were given, we have given several psychological and educational tests, in order to check the results of the original tests.

These groups were each required to take English, Mathematics and General Science, and they were permitted to elect as a fourth subject anything that was offered at a time that would fit the remainder of their pro-

grams. Some elected languages, some shop, some history, some drawing but, in so far as possible, the children were held to the homogeneous grouping as obtained by the psychological tests.

In my own department of mathematics we proceeded at once on the theory that the classifications were all right and that we could demand more from the more brilliant group than from the other group. Our subsequent experience bore out our original assumption for the brighter group was able to do practically two months' more work than the slower group. This leads me to say that the most retarded students in our high school today are often the most brilliant ones.

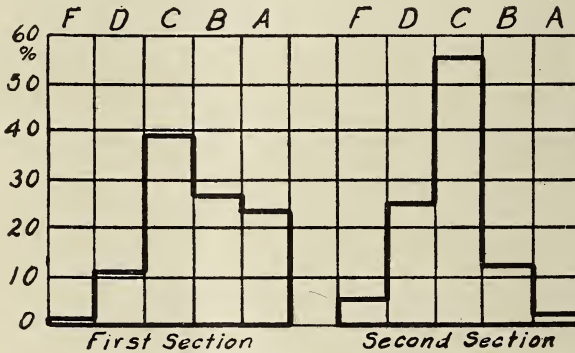


Fig. 1.

Frequency Polygons Showing the Distribution of High School Marks of 40 Seniors in the University High School for 3 Years and 3 Months, - From Sept. 1917 to Jan. 1921.

In the mathematics work, we have worked out achievement tests on each chapter of the text-book, the results of which enable us to discover how well our classifications have been wise. If for any reason, it is discovered that a student would probably do better in another section, there is nothing to prevent our transferring him, unless perhaps it be a conflict in program. The results of our tests in mathematics so far shows that the slower of the two freshman sections in mathematics has never been able to establish a median as high as the faster group.

In order to see how well the results of the original psychological tests properly classified the entire group, let us consider some of the facts.

The school marks for two years have been given by the teachers in charge. The marks were given in letters A, B, C, D, and F, according to the relative marking system. These marks were based largely on objective educational tests which were the same for all pupils. In a total of three years and three months (up to the present time) the marks were distributed in the two sections as shown in Fig. 1.

Fig. 1 shows that of all the marks received by the brighter section (called First Section in the Chart), 22.8 per cent of the class received a mark of A, 26.9 per cent B, 38.3 per cent C, and 11.1 per cent D, and 0.009 per cent F. In the slower section 2.6 per cent of the class received a mark of A, 11.9 per cent B, 55.2 per cent C, 24.4 per cent D, and 5.9 per cent F.

It may be interesting to know that the 0.009 per cent of F's in the First Section was caused by two pupils each failing in French, one in Latin and one in History. On the other hand the 2.6 per cent of A's in the Slow Section was contributed by three pupils each getting A in Art, one in Agriculture, one in History, one in Home Economics, and two in Latin.

One might say, after looking at the results of the chart above, that if

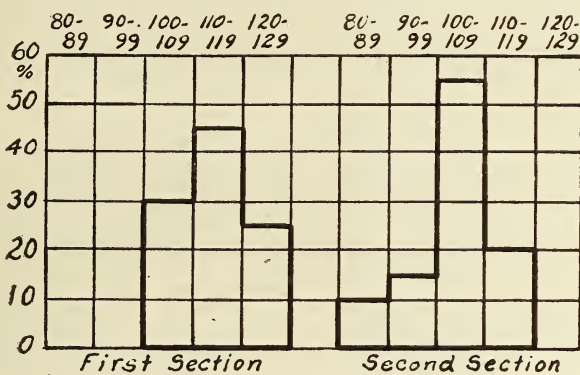


Fig. 2.
Frequency Polygons Showing the Distribution of IQ's of 40 Seniors (Class 1921) University High School.

the pupils had been properly divided, no one in the slower section could have received A or B in any subject. This would, of course, be overlooking the significance of industry in a student, the importance of which as I have previously pointed out, should not be overlooked. On the other hand, one might say that if the tests picked the really capable students, none of them should fail or receive D. This also would be overlooking the tendency some brilliant people show to "quit." As I have said, no test has been devised, as yet, which will predict how well a pupil will stick to his task. Such a test would be a valuable addition to our present stock.

Fig. 2 above shows the distribution of I. Q's for the two sections and I present it here for whatever interest it may have. It can be seen at a glance that all of the First Section have I. Q's above 100 and most of the Second Section have I. Q's below 110.

Now if we correlate the marks of the two sections combined with the results on the original psychological tests, what do we find? —

The correlation chart, Fig. 3, shows the correlation between school marks for three years and three months, and the three original psychological tests. The open dots are boys, the black dots, girls. It is clear from the chart that although the boys do better on the original psychological tests, they fall behind the girls in performance or achievement.

A careful study of the preceding chart will reveal many interesting things. And when one knows the personality behind each dot, the problem is doubly interesting.

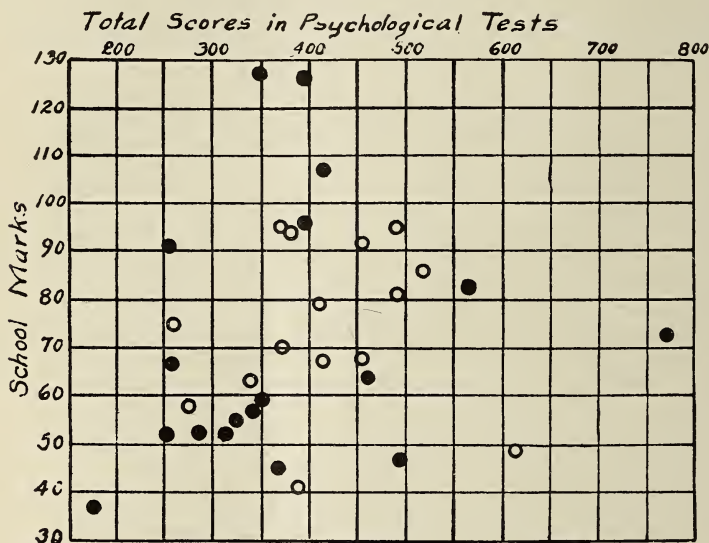


Fig. 3.

Distribution of Correlated Abilities in Psychological Tests and School Marks of 33 Seniors in the University High School for 3 Years and 3 Months, - From September 1917 to January 1921.

The chart shows clearly the two types of students: (1) The student who, though he had acknowledged ability, fools away his time and sometimes clearly fails in his work; and (2) the student who scores low in the psychological tests, but who is a plodder with a sense of responsibility, and also by unusual effort and industry manages to excel many whose natural endowments should enable them to rank much higher in actual performance.

Figs. 4 and 5 show for our present Junior and Sophomore Classes what Fig. 1 shows for the present Senior Class so no comment will probably be needed here.

Finally what are the advantages of a homogeneous classification of

high school students? Without assuming to have discovered all of the advantages, our experience leads us to suggest the following:

I. The teacher knows at the outset who the stronger and weaker pupils are and can adapt her methods of instruction to the pupils, thus

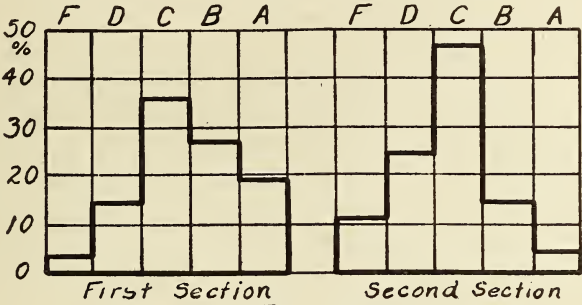


Fig. 4.
Frequency Polygons Showing the Distribution of High School Marks of 43 Juniors in the University High School for 2 Years and 3 Months, - From September 1918 to January 1921.

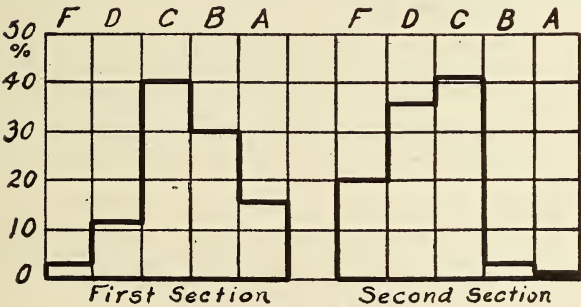


Fig. 5.
Frequency Polygons Showing the Distribution of High School Marks of 42 Sophomores in the University High School for 1 Year and 3 Months, - From September 1919 to January 1921.

enabling the brighter pupils to make as much progress as possible and the slower ones to go at a pace slow enough to insure their learning something worth while. This would surely make for efficiency in instruction and time. The opinion, often held by many, that it is better for the slower pupils to be in classes with brighter ones cannot be justified by any careful consideration of the facts gained by studying scientifically the method of homogeneous

classification. As has been pointed out elsewhere, the failure to classify according to ability, doubtless leads to enormous losses to all concerned.

2. As a corollary to (1) above, homogeneous classification reduces the number of failures, because the students who might otherwise fail are given individual attention earlier in the course and their chances of passing the course are materially increased.

It is hard for anybody to justify the large percentage of failures in many schools in this country and the effect of such failures is bad.

3. On the other hand, homogeneous classification makes it possible for the brighter students to cover a great deal more work in one year than would be possible otherwise. This again is very important when we consider how great the need for well trained men and women is these days.

This third advantage does away with the well known type of student who though really brilliant is forced to go at a snail's pace, gets bad habits of all kinds, and is often dubbed a failure by his teacher. The same pupil often shows up later as a real genius and then he is put up as a sample of a really inferior type who succeeds in spite of his lack of ability to do school work. It would be interesting for all of us to know the true history of some of these cases of which there are many well known ones.

4. The most important advantage of homogeneous classification as it appears to the writer, is the enormous gain for society through the certain conservation of human resources.

It seems fair to say that both psychological and educational tests may be used (1) as a basis for classifying students in order to more properly instruct them, and (2) as a basis for predicting with some degree of certainty what the subsequent work of the pupil is likely to be, and (3) we can see that the pupil gives us returns in line with what his ability gives us the right to expect.

THE FOUNDATION FOR MORE WORK IN CHEMISTRY

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The foundation for more work in chemistry should be thoroughly sound if the superstructure to be erected on this foundation shall be worth while. Faulty ground work is remedied most effectively by rebuilding, admittedly a costly procedure in terms of energy and time, yet preferable to a patch-work laid over an unsound foundation. Those of us who are charged with the responsibility to build on from the foundation in preparing college students for the professions of chemistry, pharmacy, medicine, dentistry and engineering and in providing for other college students a portion of their general training in science, are fully cognizant of the difficulties that beset administrators of our preparatory schools in the matter of arranging a discipline in chemistry that shall serve the needs of pupils as a foundation for more work in this subject. We are agreed that the high school discipline in chemistry should receive recognition as a unit for admission to the university. In some instances it furnishes an adequate preparation for the college course 2, and students who come to us with a preparation of this character are admitted with propriety to either of the college courses, 2b or 2E, that are designed particularly for them, in which inequalities of preparation are compensated by the requirement of more laboratory instruction than is demanded of students who have received their initial preparation in the college course 1. Naturally those high schools which send each year a large proportion of their graduates to the university would arrange the chemistry course to suit the needs of the graduates who might continue the subject in college. They represent only a small proportion of the total number of high schools and the students who come to the university from these schools constitute likewise only a small percentage of the entering class.

What should the university do with those students who present an admission unit derived from a course which does not conform to a reasonably well-standardized discipline in chemistry? Four years ago this section of the Schoolmasters' Club heard an excellent paper by Dr. A. L. Ferguson of our general chemistry staff entitled "Chemistry in the High School as Preparation for Chemistry in the University," in which was discussed exactly the same topic that has been assigned to me. The problem had reached an acute stage at that time. Today it is still more acute, owing to the great increase in the number of students who enter the university. My personal interest in the problem extends over more than eighteen years of teaching experience, in the course of which I have had teaching contact with approximately nine thousand students. Of these 6,600 have carried on with me

in either of the courses, 2E or 2b, while 1 200 have had with me either course 1 or course 2. They have been drawn from practically all sections of the United States and from divers foreign countries. Possibly half of them are from our own State.

Unhesitatingly I affirm from teaching experience that students who have received their initial training in the college course 1, make a better average showing in course 2 than do the students in the courses 2E and 2b, all three courses, 2, 2E and 2b, giving the same ultimate scope of training. This represents a perfectly natural expectation. Students derive more from course 1 than would be reasonably possible from the high school course, since they have attained a greater intellectual maturity. They enter course 2 directly from course 1 without any serious break in the continuity of instruction, whereas students who enter either course 2E or course 2b may have had their high school chemistry discipline in the senior, junior or sophomore year. A contributing factor of prime importance comes from an increased capacity to apply the fundamental principles of mathematics and physics, which accompanies the greater intellectual maturity of the students. In a surprisingly large number of instances students enter the university after one, two or more years have elapsed since graduation from the high school. For the following data from last semester's class in course 2E I am indebted to Dr. Hodges. The class numbered 237 students. Of these 22% had preparatory chemistry in 1919-20, 39% in 1918-19, 20% in 1917-18, 9% in 1916-17, 9% in 1915-16 or earlier, while one percent apparently had left the class before the questionnaire was formulated. It is clear that 22% had the preparatory course in the senior year of the high school period. Probably the majority of the 39% group had junior preparation and a large proportion of the 20% group had sophomore preparation. To have nearly two-fifths of a large class present entrance qualifications dating back three or more years places a heavy burden on the instructing force. Many of these students face a serious handicap owing to the long interval between the preparatory and the continuation course. It is to be hoped that the return to normal conditions will be reached very soon.

For a number of years I have asked students in courses 2E and 2b to contribute data relative to their high school discipline in chemistry. It was hoped that the data collected through personal consultations with students might prove helpful in instructional activities by indicating to the teaching staff those students who might require a greater amount of personal assistance in the laboratory and class room. I am glad to state that the expectation has been realized. A questionnaire was formulated as follows:

- (1) Give the name and location of the preparatory school.
- (2) Give the year of graduation from the preparatory school.
- (3) Give the year in which preparatory chemistry was taken.
- (4) Give the textbook used in the chemistry course.
- (5) Give the periods devoted weekly to class and to laboratory instruction in chemistry.

Other questions were asked regarding the nature and scope of the chemistry course if the replies to the questionnaire suggested that further information was desirable. A surprisingly large number of students could not answer questions 4 and 5. It would appear also that many students used "Carhart and Chute" for guidance in chemistry. Others could name the authors of their textbooks after they had opportunity to consult the texts in their rooming houses. Analysis of the reasonably accurate information accumulated shows clearly that chemistry in our high schools is by no means a well-standardized discipline. It may be taken by pupils in their sophomore, junior or senior year. The weekly instructional periods range from one to five for both class and laboratory instruction in every conceivable combination. The scope and aims of the course vary between wide limits, from the discipline which gives adequate preparation for further work in college to an ultra-modern discipline of the trade school type.

To give a one-year discipline the most appropriate location in the high school curriculum often presents to the administrator difficulties that arise from conflicting claims of other one-year courses. Frequently physics and chemistry press conflicting claims for a location in the senior year. Personally I hold the view that physics is a science of paramount importance in the high school curriculum, which should be held an absolute requirement for graduation from every high school. It would seem advisable therefore that pupils be permitted to elect physics in the junior year in order that they might have a better opportunity to fulfill the requirement. For schools which have a teaching staff large enough to warrant the procedure I would advocate a second year of physics, which should not admit students to advanced standing in college physics. If the pupil can take only one of the two subjects, physics or chemistry, or if the school can offer but one of them, physics should be selected. I believe the senior year is appropriate for the chemistry discipline, partly because the subject naturally would claim the interest of fewer pupils, and principally because this subject needs the aid of physics if the discipline is to be reasonably worth while. The college student who has not had a discipline of physics is handicapped seriously in the beginning chemistry courses and the handicap is augmented naturally by a lack of capacity to apply the fundamental principles of mathematics. What applies to the college student in this connection will apply equally well to the high school student. The view held unanimously by our own faculty of chemistry that physics is a necessary aid to chemistry, is held likewise by the instructing staffs in other universities. Dr. McCoy in his "Introduction to General Chemistry," which has been compiled recently for beginning chemistry classes in the University of Chicago, starts the text with the following phrase: "A Knowledge of Physics Prerequisite for Chemistry." . . . "It is to be assumed that the student taking up chemistry has had at least a one-year high school course in physics."

That the sophomore year is decidedly inappropriate for the high school chemistry course is shown clearly by the following tabulation of records

from course 2E for the years 1915-16, 1916-17, 1917-18 and 1918-19, second semester only. The usual instructional discipline of the first semester was disrupted by the activities of the S. A. T. C. in this year. In the tabulation vertical divisions have the following significance.

I gives the total enrollment of the class. All were asked the usual questionnaire except one section of thirty-odd students in the second semester, 1918-19.

II gives the number of students who furnished reasonably accurate answers to questions 4 and 5, occasionally with my assistance.

III gives the percentage who had preparatory chemistry in the senior year of the high school course.

IV gives the percentage who had chemistry preparation in the junior year of the high school course.

V gives the percentage who had the chemistry discipline in the sophomore year of the high school course.

VI gives the percentage who made unsatisfactory grades (D or E) from the entire class.

VII gives the percentage who made unsatisfactory grades from those who had preparatory chemistry in the sophomore year.

VIII shows the increase over the average of unsatisfactory grades given those who had preparatory chemistry the sophomore year.

It is evident also from this table that sophomore elections of chemistry in our high schools are increasing in number. This tendency should be checked.

Sem.	Year	I	II	III	IV	V	VI	VII	VIII
1st	1915-16	150	128	50	44	6	19	25	32
2nd	1915-16	186	175	52.5	39	8.5	21	27	29
1st	1916-17	146	110	43	41	16	27	60	119
2nd	1916-17	219	201	37	56	7	17	36	112
1st	1917-18	146	124	35	50	15	18	37	106
2nd	1917-18	212	180	36	50	14	16	20	25
2nd	1918-19	250	174	35	48	17	18	27	50
		Averages		41	47	12	21	33	68

The general summary of the answers to item (5) of the questionnaire shows that the weekly instructional periods devoted to chemistry are not at all well-standardized in the high schools throughout this country. The extreme cases of two or ten periods per week are relatively infrequent. Doubtless peculiar local exigencies are responsible for them. An average of three or four class periods with four or three laboratory periods taken in blocks of two or three period hours would provide a well-balanced discipline that would afford ample opportunity for all the instruction needed. In many high schools there are decided deviations from this average, particularly in the high schools of other states. The over-balance usually lies towards the side of class instruction, suggesting generally a lack of equipment for laboratory exercises. A part of the handicap imposed by lack of equipment can be overcome if the instructor performs a sufficient number of representative

demonstrations before the entire class and if these are thoroughly discussed by the class. This would necessitate an increase in the number of class periods. If the students coming from a discipline of this type carried on in college with a more advanced course they would manifest a lack of manipulative technique. The most serious phase of this handicap is shown in the lack of judgment to adapt apparatus to various uses. My colleagues and I have witnessed many instances of this initial general helplessness on the part of students who have not had the privilege of performing experiments for themselves in their preparatory discipline. Usually time will set at naught this disadvantage except for those students who can never make up successfully a handicap.

The aims of the high school chemistry discipline show a wide variation in different schools. The topic assigned to me precludes discussion of these differing aims except in the matter of one point. I believe that discipline which gives pupils adequate preparation for more work in chemistry, which serves the needs of those pupils who will carry on with the work in college, is the best possible discipline in this subject for all pupils, irrespective of what they may do after graduation, for it will have given them good training in correlating thought with practical experience. The high school should be a training ground for constructive thought in every subject taught. It should not be confounded with the trade school in any single line of endeavor. This does not mean that the trade school is not a useful institution. It is indeed a much needed institution. If the high school chemistry discipline has the aims of a trade school in all or in a considerable portion of its activity it is not accomplishing the real purpose of a high school course. The close relationship of chemistry to various industrial activities which may have considerable local importance often lures the administrator to build a chemistry course that may serve as a feeder to the local industries for trade school products. In my judgment this is an unfortunate procedure. In the chapter dealing with the classification of the elements Dr. McCoy has made some statements about the aims of a chemistry course that are particularly appropriate to our discussion at this point. 'By reason of the enormous number of known chemical substances the best that a trained chemist can hope or even wish to do is to become thoroughly familiar with the principles and laws of his science and to know a moderate number of facts regarding the commoner substances, together with those with which his own field of work brings him in contact. His mind should be a laboratory and not a warehouse; otherwise he will soon find it so crowded with useless and unrelated data (chemical junk) that he has no ability to solve the new chemical problems that will constantly confront him.'

I consider a course which emphasizes particularly the applications of chemistry to agriculture, chemistry in the home, chemistry of common things or chemistry in its applications to daily life, foreign to the true aims of the high school discipline. While such courses may have merit which will entitle them to receive recognition as units for admission to the university,

they do not give a foundation for more work in chemistry. To insist that students who have had a preparatory discipline of this character be given advanced standing by the university, placing it on a parity with the university course 1, is equivalent to claiming recompense for services not rendered. The university should not give this recognition to such courses. In the College of Literature, Science, and the Arts the propriety of electing course 2b is left to the judgment of student and instructor combined. In case the student has selected this course and it is demonstrated within four weeks that the selection has been ill-made, a transfer to course 1 is effected. In some instances it has not been possible to make the transfer at the time most desirable for the change, owing to lack of facilities to take on more students in course 1. In the past the Colleges of Engineering and Architecture have taken the stand that high school chemistry, accepted for admission, shall admit also to advanced standing, irrespective of the nature of the preparatory discipline. Application of this principle has operated to the disadvantage of many students. The fact is now appreciated by the administrators of the Colleges of Engineering and Architecture and transfer to course 1 or 1b of students who are not prepared to carry on the work of course 2E has been permitted in a number of instances. I am glad to state authoritatively that the policy of placing poorly prepared students directly in course 1b, if they have shown unfittedness for course 2E within the first four weeks of the semester, will be placed in operation this coming college year by the Colleges of Engineering and Architecture. Also I am glad to state authoritatively that facilities to care for all students who may be transferred will be provided by the department of general chemistry. Recently the committee of the College of Literature, Science, and the Arts on requirements for admission to the university has sent out to the different departments of instruction a questionnaire asking for suggestions relative to changes in formulating admission requirements that may be dictated by experience with entering students. The following paragraph is quoted from the reply sent by the department of general chemistry to this questionnaire. "A survey should be made by the university of the chemistry courses in accredited schools. Students who present chemistry for admission from schools in which the chemistry course does not afford suitable preparation for the college course 2, should be required to elect course 1. Students who bring high school credit in chemistry earned three or more years prior to the date on which admission is sought to course 2, 2b or 2E, should be required to pass an examination for admission to these courses. In all other doubtful cases an examination for admission to these courses should be required. It is recognized that high school chemistry courses which do not afford adequate preparation for the continuation of chemistry in the university, nevertheless have educational value for which admission credit should be granted." I understand that the committee is giving consideration to the reports submitted in answer to the questionnaire. Action is to be expected in the near future. With respect to the item regarding the examination requirement for admission to course

2E I am glad to state that the Colleges of Engineering and Architecture have adopted this suggestion and will place the requirement in operation this coming semester in the matter of admission credits earned three or more years prior to the date on which admission to advanced standing is sought.

What should be the content of the preparatory course that ought to afford students a training meriting admission to advanced standing in the university? My experience dictates the following views on this topic. The preparatory course should be made a logical development of fundamental principles constituting the ground work of chemistry. The pupil should have gained familiarity with the principles of chemical language both in the verbal sense and also in the sense of laboratory technique. The tongue and the fingers should be equally facile in giving expression to chemical terms and manipulations. The language peculiar to chemistry is both extensive and complex. It represents a greater share of the preparatory discipline than is given in the usual high school course. My experiences with students who have been admitted to advanced standing and with students who have received their initial instruction in the university incline me to the view that high schools should give this point serious consideration. As a rule the high school course tries to cover altogether too much ground and consequently the importance of the language part of the discipline is slighted. While answering questions regarding the nature and scope of their high school courses students often inform me that they have covered the descriptive chemistry of the non-metallic and the metallic elements, frequently with a systematic discipline of qualitative analysis thrown in—apparently for good measure. Others have made series of gravimetric analyses and others have analyzed foods and materials that are used in the home for culinary purposes. What to do with these unfortunates is always a perplexing problem. Naturally we urge them to rebuild from the ground up but often this better procedure has to be substituted by the patchwork method, which is never wholly satisfactory.

Students admitted to course 2 are expected to know the fundamental classifications of substances and the general principles of nomenclature. They should know the laws of combination and their derivation, including a considerable amount of information relative to the behavior of gases that is considered commonly in the physics course. They should know the applications to chemistry of the structural theories, the molecular and atomic theories. They should understand the significance of the term solution and should know something about the development of modern views regarding solutions, including the theory of electrolytic dissociation. They should know also the mechanism of a chemical reaction. With respect to this latter topic the high school discipline is woefully deficient, for mass action and the principles of chemical equilibria are excluded almost invariably from that discipline. It is not expected that students shall have a wide knowledge of these topics. They will intensify the initial experience of the preparatory course in each succeeding discipline.

I believe the average chemistry course of the high school would be strengthened if greater emphasis were placed upon the language phase of the discipline. It would be strengthened also by the inclusion of a larger proportion of the fundamental general principles. Extraneous laboratory exercises should never be given, such as quantitative analyses of all descriptions, exercises dealing with organic substances, systematized qualitative analysis and systematized exercises on the derivatives of the metallic elements. The systematic study of the commoner non-metals and their derivatives will afford ample scope for both the class and laboratory discipline. A reasonably thorough knowledge of oxygen, hydrogen, the halogen elements, chlorine, bromine, iodine and fluorine, and sulphur, together with facility to use chemical nomenclature and with capacity to apply general principles, both gained from descriptive material selected within the range of this discipline, will afford a good foundation for more work in chemistry and may lead ultimately to the abolition of the compensating college courses, 2b and 2E.

ENTRANCE REQUIREMENTS IN MATHEMATICS
THE CAUSE OF FAILURES IN MATHEMATICS IN THE COL-
LEGES OF ENGINEERING AND ARCHITECTURE OF
THE UNIVERSITY OF MICHIGAN

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It has been suggested that in this paper I point out some of the most common mistakes our first year students make in elementary mathematics, particularly in algebra, and in that way show why so many students fail in mathematics at the end of their first or second semester in college. This, to me, seems an impossible task, and I fear, were I to attempt it, at the end of the twenty minutes allotted to me, I should have made very little progress in that direction. I shall, however, further on, mention some of the most common algebraic mistakes indulged in, merely because they might be amusing, and not at all intending that they should be regarded as reasons why so many students are presented with "E's" in February and June of each year—which "E's," by the way, have no relation whatever to the word "excellent."

The idea that some hold, that students fail in mathematics because of certain mistakes they have made in the class-room, seems to me to be wrong. It is true that these many and varied errors in algebra, repeated day after day, reveal to the instructor much of the carelessness or weakness and incapacity of the students,—they are merely the evidence of lack of good training in algebra—but they in themselves are not the cause of failure. For that we must look further; we must go back to the very causes of the mistakes, to the causes which prevented the students' being able to comprehend and to assimilate a sufficient amount of the content of the course to satisfy the instructor's requirements.

It is hardly necessary here to recall in detail the requirements in mathematics for admission to the colleges of Engineering and Architecture, for they have been published in the catalogues and discussed at length at meetings and conventions for a long time. We may then consider it a well known fact that when a student enrolls in a course in College Algebra and Analytic Geometry, he is supposed to have had thorough training in the applications of the fundamental rules of algebra, in dealing with fractions, simple equations, involution, evolution, the theory of exponents, and quadratic equations. He is supposed to have had the advantage of a course in plane geometry, seriously taught and seriously pursued; and it would add greatly to his success if he could boast of a well founded knowledge of solid geometry and of trigonometry, so that he would be free to grasp and consider without

handicap the new ideas in algebra and the ideas in analytic geometry as they are presented. It is the lack of this preparation that has called forth this paper.

Far too large a percentage of the students who enter the University as freshmen in engineering fail in mathematics during their first year here, and far too many more continue to do work of mediocre quality when they ought to be making much better progress.

It may be of interest to note that of the students who enter the College of Engineering from Michigan high schools, approximately twenty percent fail in mathematics at the end of their first semester in college. This is more than one half the whole number of failures in all other freshman subjects.

The teachers of Michigan schools, however, are to be congratulated upon the fact that there are fewer failures among the students whom they have prepared than among those who come from schools outside the state.

If it were possible to enroll these deficient students in certain sections, and then modify the course in mathematics so as to more nearly meet their immediate needs—taking longer time to complete the course—the problem of dealing with them would be much more simple. But such an arrangement is impossible, and from another point of view is very undesirable. Furthermore, we would not be justified in making it, for the high schools profess to, and I am sure they prefer to, so train all the students they send us that they will be able to pursue our first courses intelligently, or at least with no more than a reasonable amount of difficulty.

There being, then, no other disposition possible, these incapable students naturally become distributed throughout all the sections of mathematics 1, having a more or less bad influence on the rest of the class and limiting by their presence the work that may be done by the better qualified students. For, once in our classes, they can not be totally ignored. We must give them a reasonable amount of special attention, but always at the expense of and at the risk of boring the rest of the class.

We proceed to develop a formula, derive an equation, or explain a problem with a determination and a feeling that from the point of clearness, our presentation of the subject leaves nothing more to be desired. As we progress, we watch the faces before us for signs of distress, and soon see that some of the students are losing interest and are unable to follow further. We proceed more slowly and with a stronger determination to be intelligible, but only to find it necessary to give up and begin again. Upon investigation, one man is found to be wondering why $(2x + 4)/6$ can be written $(x + 2)/3$, another why x^0 is 1 and not 0, or why 0×5 is 0 and not 5. And finally someone suggests that we ought to shorten our work as much as possible and replace " $x^5 - x^2$ " by its equal x^3 ," and so on. Thus we continue day after day, mindful of the fact that there are many cases where a little more explanation for clearing up doubtful points would mean the difference between passing and failure, but always realizing that the class as a whole is not getting as thorough a grasp of the subject as would

be possible under different circumstances. Yet the members of the class who are responsible for this unsatisfactory condition are not all to be too severely censured. When they enrolled in the course, many of them did not know, they had no means of knowing, what would be required of them. They regarded the permission and advice given them as being equivalent to assurance of their capacity for doing the work of the course. If they had had an idea of what to expect, I am sure that some of them would have demanded of themselves and of their high schools that they be more adequately prepared for the work in which they were about to engage.

Particularly poor has been the preparation in mathematics of the freshmen who entered the Colleges of Engineering and Architecture last fall. Whereas in former years about seven percent of the entering students were conditioned in solid geometry, this year about fourteen percent of the freshmen were obliged to remove their conditions in that subject sometime during the year. Some have already done so, while others are still under obligation.

Here I might say that on the so-called "Warned" and "Put on Probation" lists made up in February, appear a very large number of names of the students who were conditioned in solid geometry.

Shortly after the work of the semester began, the lack of proper training in algebra became apparent, and because of this deficiency, many students were doing very poor work in trigonometry and analytic geometry. It was then thought best to ask one of the teachers to organize and to take charge of a class in elementary algebra.

When the announcement was made, and it became known to the students that such a class was being formed, there were applications from more than a hundred freshmen for admission to it. Consequently, it was necessary to make provision for four sections instead of for only the one which had first been considered.

These sections in Elementary Algebra had no official status whatever. They were merely private tutoring classes, organized with no intention of establishing a precedent, but solely for the benefit of those students who by that time were convinced of their need of that kind of work.

In these classes special attention was given to factoring and exercises involving fractions, the theory of exponents, radicals, and linear and fractional equations. During the class periods the students devoted their time to working exercises at the board with the teacher giving each as much personal attention as possible. In spite of the inconvenient times for meeting, which were two hours a week in the late afternoons and evenings, the students were quite regular in attendance and showed great interest in the work. Altogether, the results were quite satisfactory and seemed to justify the giving of the courses.

The necessity of more careful training in elementary algebra may be illustrated by the following "monstrosities," commonly called "mistakes in elementary algebra":

- (1) " $-3x(x-y) = -3x^2 + y$."
- (2) " $a(b+c) + a$ cannot be factored."
- (3) " $(a+b)^2 = a^2 + b^2$ " or " $(6-2)^2 = 6^2 - 2^2$."
- (4) " $(2ax + 3by)/5b = (2ax - 3y)/5$."
- (5) " $2bx/3 - 4ay/x = 2bx^2 - 12ay$."
- (6) $0/K$ or $0/(x-3) = ?$
- (7) " $0.K = K$."
- (8) If $5x + 2 = 0$, does $x = 5/2$ or $2/5$?"
- (9) $x/3 + y/2 = 1$ may be written " $2x + 3y = 1$."
- (10) "If $(2x-3)(x-4) = 0$, what are the roots of the equation?"
- (11) "If $\sqrt{x-3} = 0$, what must be the value of x ?"
- (12) What is the square of $\sqrt{x-3}$?
- (13) " $(a^3)^2 = a^9$ "; " $1/x^3 = x^{1/3}$ "; " $\sqrt[3]{x} = x^{3/2}$."
- (14) " $5 - 2\sqrt{3} = 3\sqrt{3}$."
- (15) " $\sqrt{9+16} = \sqrt{9} + \sqrt{16}$."

The preparation of students in plane and solid geometry (if they have had solid geometry) seems to be much more satisfactory than their preparation in algebra, either because it is an actual fact or because the students do not have as many occasions for displaying their knowledge of those subjects. I prefer to believe the former.

The errors in trigonometry made by first year students forbid my saying that their training in trigonometry has been ideal. Among these mistakes may be found the following:

- (1) " $\cos x = 1/\sin x$."
- (2) " $\sin(x+y) = \sin x + \sin y$."
- (3) " $\sin 2x = 2 \sin x$."
- (4) " $\sin^3 x = \sin(x^3)$."
- (5) " $\sin^2 x - \cos^2 x = 1$."
- (6) $(\sin x + \cos x)/(\cos x - \sin x) = \tan x - \cot x$ and sometimes $\tan - \cot$.

A student who combines "wied algebra" with his exaggerated ideas of the trigonometric relations in working exercises in calculus often obtains "appalling results," and is himself almost a hopeless case.

Now, as to the causes of all these mistakes and failures. Let us first get the student's reason. When one of my first year students or mentees comes to me to talk over his troubles in mathematics and I enquire what he thinks is the cause of his difficulties, he almost invariably answers: "Well, my algebra is so poor,—I don't know any algebra." Upon further inquiry, I find his not knowing any algebra may be due to any of the following reasons: He always received good marks in high school algebra without doing much work in the course; or, although he had a "wonderful teacher in algebra" in high school, he did not take the course seriously, thinking he would have little or no future use for algebra; or he always had a lot of trouble with his high school mathematics and never could understand it; and similar oth-

er reasons, any of which could be more or less the cause of his present trouble.

If the difficulties are with trigonometry instead of with algebra, the causes of the trouble, as given by the students, are about the same as those given in the case of trouble with algebra. But here one is more apt to get the impression that in some high schools at least, trigonometry is considered of minor importance, not only by the students, but also by the teachers. If this is true, it is unfortunate. Prospective students in engineering ought always be impressed with the fact that trigonometry forms a very essential part of the mathematics needed by engineers. Moreover, these students should be given a strong course in trigonometry in high school if possible.

In this course the students should learn well the trigonometric ratios and the fundamental relations between them. He should learn the value of these relations by practice in proving identities. Not only are the formulae for the functions of sums and differences of angles important, but their derivations ought also to be emphasized. The functional idea, which was probably first introduced in the study of graphs or of the theory of logarithms in algebra may well be developed somewhat further here; and, finally, the course should end with a thorough drill in the solution of triangles.

I venture to say that many of the failures of students in mathematics during their first year in the College of Engineering are due to the negligence and careless habits of the students, and to the fact that their preparation in algebra has been so deficient that it may properly be said of them "They do not know their elementary algebra." Very often the second cause is a result of the first, but that is not always the case.

We may now ask who are mostly responsible for all these failures. In answer I would say that in some cases the students, themselves, are responsible.

I mean, first, the careless negligent student who cannot make a clear definite statement about anything whatever. The student who feels that if his life in Ann Arbor is not a "continual run of pleasure" it is nothing. He very probably had the same attitude toward his high school course. He has no interest in his work, and if he ever does any serious thinking, it is on how he can best escape doing his duty and yet continue in his life of idleness and ease. He is the type of student who is capable of holding up his teacher after class or in his office to ask what is meant by the fourth dimension or what a one-sided surface is. Not that he has any more interest in those things than he has in most things, but his latest serious thought has demanded that he make an impression. The teacher answers his question and then tries to interest him in the things about which he ought to be asking questions. But for this the student has no time; he must be going. He came to make an impression, and having made an impression—not the one he had hoped to make, to be sure, but, never-the-less, an impression—he goes on his way.

About such students I can only say that if they are recommended for admission and are admitted to college at all, we could not expect to find them in any other condition than that in which we do find them; and if they show no signs of immediate improvement, it would be well for the University to be relieved of their presence at the earliest possible moment.

The unwholesome influence they have on the better students with whom they must associate forbids our considering at all the little good they, themselves, might derive from a college course.

Then there are the students who find it impossible to think mathematically, who have no "mathematical sense" so to speak. The kind of students that recently caused one of my colleagues to exclaim, while speaking of certain ones of that class, "I defy anyone to teach those two men anything in any branch of mathematics."

It need not be said that the College of Engineering is not the place for that type of student; and while a teacher of mathematics can hardly sympathize with him, he can feel kindly toward him, and can suggest a course in which his prospects for success are brighter than they would be in a career as a student in engineering.

And, finally, there are other men who are not included in the two classes of students already mentioned, but who fail in their college mathematics. Their failures are probably due to the standard of scholarship of the high schools from which they came.

It may be that the teachers' training is at fault. Every teacher of high school mathematics ought to have a good knowledge of analytic geometry and of calculus, and I might say also some knowledge of differential equations. It is only then that he can appreciate what will be expected of his pupils when they take up their college work.

Or, it may be that because of indolence, indifference, or self-satisfaction, the teacher has ceased to improve and fails to realize his responsibilities.

There is no place in the teaching profession for a lazy person. If a teacher expects his teaching to produce good results, he has got to be alive and "on the job." Indolence and indifference in a teacher are always reflected in the work of the pupil, which will be, in general, as poorly and carelessly done as the teacher will permit it to be done.

A teacher would do well to study how he can best present a subject and make his explanations intelligible to all his pupils. He should let no question sincerely and respectfully asked, go unanswered. In return, he should demand honest, well thought out, and clearly expressed work from the pupil. For to teach his pupils to think clearly and to express themselves clearly is as much the duty of the teacher of mathematics as it is the duty of the teacher of English.

Self-satisfaction is a detriment to progress. A teacher should frequently make an estimate of himself and his qualities as a teacher. He should satisfy himself in regard to his attitude toward his work. He should consider his methods of teaching in the light of the results obtained, and of the

success of his pupils in their later work.

I am sure that if, while teaching a course, a teacher, never losing sight of the fact that he is merely assisting his pupils in preparing themselves for more advanced work, seeks out the best methods of presentation; exacts thorough, thoughtful, and accurate work of the student; gives him, throughout the course, a correct idea of the relation of his present training to that which is to follow, the results will be more than satisfactory.

The standard of scholarship of a high school depends largely upon the ideals of its principal. It is he who selects its teachers. It is also he who recommends its students for admission to the University.

Among the students with poor scholastic records in the College of Engineering, there are at least two cases which are of special interest here. Both of these boys came from the same high school. One is now in his sixth semester here, and having consistently failed in every course in mathematics he has taken, is now repeating mathematics 3, which he ought to have completed at the end of his third semester in college.

The other boy is a freshman this year and has been a complete failure as a student. The combined knowledge of these two lads secured eight E's for them last semester. Each failed in all his work.

While talking with a young man from the home town of these two boys, recently, who, by the way, is a graduate of the College of Engineering, I asked what he considers the source of their trouble. His answer to my question was this, "Well, the principal of that high school is 'bugs' on American history and has no interest in any other branch of high school work. He knew that these boys were deficient in mathematics, but reasoned that they could go down to the University and try the work, spending five years at it if necessary, since they were both quite young."

I have told you the result of this folly. To give a student the idea that it is all right to spend five years in doing four years' work, is to give him an entirely wrong view of the situation. He should be impressed with the fact that four years' work ought to be done in only four years, and not in five.

And, furthermore, such high school principals ought to know that a freshman in the College of Engineering, whose only asset is his knowledge of American history is not destined to be a wonderful success as a student in engineering. They ought also to know that whatever else it is, the University is not a general high school to which partly trained students may come to complete their high school education.

Now, one might think that the teachers of mathematics in the College of Engineering have a most miserable existence, but let me say that in addition to the students about whom I have said so much, the high schools of the state have sent us a much larger number of other more capable, well trained, students with whom it is a real pleasure to work, and whose successes as students in mathematics are very gratifying indeed.

PROCEEDINGS OF THE FIFTY-SIXTH MEETING, HELD AT
ANN ARBOR, MARCH 31, APRIL 1, 2, 1921

HILL AUDITORIUM, APRIL 1, 1921

The meeting was called to order by the President, Wm. E. Praeger. Upon motion the minutes of the Secretary were considered read as published.

The financial report of the Secretary-Treasurer and of the Auditing Committee were read and approved. The report of the Nominating Committee was adopted and the officers named declared elected.

The report of the Committee on Resolutions was adopted.

NOMINATING COMMITTEE

Representing the Club at Large—W. F. Lewis, Northern Normal; I. B. Gilbert, Grand Rapids; David Mackenzie, Detroit.

Classical Conference—B. L. D'Ooge, State Normal College.

Modern Language Conference—H. P. Thieme, University.

English Conference—Carrie E. Britten, Jackson.

History Conference—Mary Harden, Grand Rapids.

Physics and Chemistry Conference—G. I. Altenburg, Highland Park.

Mathematics Conference—Albertus Darnell, Detroit.

Biology Conference—L. H. Harvey, Western Normal.

Commercial Conference—T. W. DeHaven, Saginaw.

Geography and Geology Conference—F. W. Frostic, Wyandotte.

Art Conference—Rose Netzorg, Western Normal.

Manual Training Conference—W. F. Watt, Battle Creek.

Educational Psychology Conference—E. C. Rowe, Central Normal.

Home Economics Conference—Mary E. Edmonds, M. A. C.

High School Library Conference—W. W. Bishop, University.

Administration Teachers' Conference—H. S. Doolittle, Calumet.

Music Conference—Blanche Youngs, Cadillac.

AUDITING COMMITTEE

Ivan E. Chapman, Detroit; A. G. Hall, University; C. W. McCallum, Saginaw.

COMMITTEE ON RESOLUTIONS

L. L. Forsythe, Ann Arbor; C. W. McCallum, Saginaw; Chas. C. Wilcox, Kalamazoo; J. B. Edmonson, University; R. W. Ward, Mt. Clemens; John Craig, Muskegon.

COMMITTEE ON PRESENT CONDITION OF MODERN LANGUAGE TEACHING IN MICHIGAN

Professor A. G. Canfield, University, Chairman; Dorothy Roehm, Northwestern High School, Detroit; Mary Armstrong, Olivet College; Anna M. Barnard, Central Normal School; Geo. E. Van Loon, Highland Park.

COMMITTEE ON UNIVERSITY ENTRANCE REQUIREMENTS

H. S. Doolittle, Calumet; W. H. Butts, University; A. H. White, University; H. C. Sadler, University; L. L. Forsythe, Ann Arbor; R. W. Ward, Mt. Clemens; J. A. Craig, Muskegon; Arthur Andrews, Grand Rapids.

FINANCIAL REPORT OF SECRETARY-TREASURER, 1920-1921

1920

RECEIPTS

Balance, as per last report, Commercial Department.....	\$	121.00
Balance, as per last report, Savings Department.....		527.87
March 24, Deposit dues		160.00
" 27, " "		33.00
" 31, " "		92.00
April 1, " "		215.00
" 1, " "		100.00
" 2, " "		122.00
" 3, " "		78.00
May 10, " transfer from Savings Department.....		200.00
June 25, " "		50.00
Sept. 22, " back dues		8.00
Oct. 23, " from-sale of Journals to U. of M.		70.00
" 23, " Advertising, \$25.00; Journals, \$2.70; Dues, \$1.00		28.70
Dec. 4, " Advertisements, \$5.00; Journals, \$1.20		6.20
" 4, " transfer from Savings Department		100.00
" 18, " sale of Journals		50.00
1921		
Jan. 15, " back dues		21.00
March 15, " " "		9.00
" 19, " " "		94.00
" 23, " " "		48.00
" 23, " interest		14.79
		\$2,148.56

EXPENDITURES

April 2, Check No. 508, Prof. J. F. Hoscic, address	\$	70.00
" 3, " " 509, L. P. Jocelyn, salary		150.00
" 10, " " 510, Nellie Breathwaite, clerk		5.80
" 12, " " 511, L. P. Jocelyn, paid doorkeepers		25.95
" 12, " " 512, R. P. Suarez, engraving, Supt. Keeler		10.96
" 12, " " 513, Prof. Tenney Frank, address		50.00
May 4, " " 514, H. J. Abbott, P. M., stamps		15.00
" 13, " " 515, American Express Co.		4.71
" 10, " " 516, A. A. Press, Proceedings \$428.27, Programs \$170.85		599.12
" 19, " " 517, Caroline E. Britten, English Conference		12.00
June 1, " " 518, S. W. Millard, printing, badges, etc.		33.00
" 8, " " 519, American Express Co.		4.96
" 8, " " 520, Emma M. Kapp, clerk		4.43
" 17, " " 521, Fred Stevenson, delivering Journals		2.10
" 25, " " 522, Office expenses for one year		124.60
Oct. 20, " " 523, H. J. Abbott, P. M., stamps		2.00

MICHIGAN SCHOOLMASTERS' CLUB

Dec.	4,	"	"	524, L. P. Jocelyn, salary to October 1	150.00
"	31,	"	"	525, H. E. Ten Eyck, Commercial Conference	9.29
Jan.	3,	"	"	526, H. J. Abbott, P. M., stamps	4.00
March	9,	"	"	527, H. J. Abbott, P. M., stamps for programs	30.00
"	15,	"	"	528, H. J. Abbott, P. M., stamps for programs	10.00
Total					\$1,317.92
Receipts					\$2,148.56
Total expenditures					\$1,317.92
Transfers					350.00
In Savings Department					192.66
In Commercial Department					287.98
					\$2,148.56

REPORT OF AUDITING COMMITTEE

This is to certify that we have examined the accounts of the Treasurer of the Michigan Schoolmasters' Club for the year March, 1920, to March, 1921, and find the same to be correct and accurate.

(Signed)

C. W. McCALLUM,
A. G. HALL,
IVAN E. CHAPMAN.

REPORT OF NOMINATING COMMITTEE

To the Honorable President and Members of the Schoolmasters' Club:

Your Committee on Nominations would respectfully submit the following report:

For President—J. B. Edmonson, University.

For Vice-President—Lila E. Fyan, Detroit.

Member of Executive Committee (for three years)—C. S. Larzelere, Central Normal.

We further recommend that all Conference officers, as elected, be ratified.

W. F. LEWIS,
CAROLINE E. BRITTEN,
LEROY H. HARVEY,
H. S. DOOLITTLE,
I. B. GILBERT,
T. W. DEHAVEN.

OFFICERS FOR 1921-1922

President—J. P. Edmonson, University.

Vice-President—Lila E. Fyan, Northwestern High, Detroit.

Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

Executive Committee—A. G. Hall, University; Jessie S. Gregg, Kalamazoo; C. S. Larzelere, Central Normal.

Classical Conference—Chairman, A. R. Crittenden, University; Vice-chairman, Florence M. Barnard, Saginaw; Secretary, Dorothy Roehm, Northwestern, Detroit.

Modern Language Conference—Chairman, C. P. Wagner, University; Secretary, A. G. Canfield, University.

English Conference—Chairman, Roy W. Hamilton, Alma College; Secretary, Gladys Wheeler, Battle Creek.

History Conference—Chairman, Carl Pray, Michigan State Normal College; Secretary, Mildred Taylor, Highland Park.

Physics and Chemistry Conference—Chairman, W. F. Lewis, Marquette Normal; Vice-Chairman, C. W. Chapman, Michigan Agricultural College; Secretary, D. L. Rich, University of Michigan.

Mathematical Conference—Chairman, S. M. Dudley, Pontiac; Secretary, Jane Matteson, Michigan State Normal College.

Biology Conference—Chairman, Lida Rogers, Holland; Secretary, Helen B. King, Saginaw.

Commercial Conference—Chairman, T. W. DeHaven, Saginaw; Vice-Chairman, A. R. Hartwick, Nordstrom High, Detroit; Secretary, Miss Barton.

Geography-Geology Conference—Chairman, F. W. Frostic, Wyandotte; Secretary, A. R. Gilpin, Northwestern High, Detroit.

Art Conference—Chairman, Alice Guysi, Detroit; Secretary, Mrs. C. C. Dewitt, Ypsilanti.

Manual Training Conference—Chairman, G. B. Frazee, Grand Rapids; Secretary, ————.

Educational Psychology Conference—Chairman, C. C. Berry, University; Secretary, Marie I. Rasey, Detroit.

Home Economics—Chairman, Julia P. Grant, Detroit; Secretary, Margaret A. Hall, Battle Creek.

Library Conference—Chairman, Fredericka Gillette, University; Secretary-Treasurer, Agnes Snover, Northern High, Detroit.

Administrative Teachers' Conference—Chairman, W. J. Frye, Eastern High, Detroit; Secretary, Florence M. Rennie, Ann Arbor.

Music Conference—Chairman, G. O. Bowen, Ann Arbor; Secretary, Blanche Youngs, Cadillac.

REPORT OF THE RESOLUTIONS COMMITTEE

The Michigan Schoolmasters' Club, assembled in the city of Ann Arbor, Michigan, for its fifty-sixth annual meeting, desires to express to the University of Michigan and to the Board of Education of this city its profound appreciation for the many courtesies extended, especially in placing at the disposal of the Club Hill Auditorium and other places of meeting. We also wish to express our high appreciation of the efforts of the officers of the Club for the excellent program arranged and for the fine complimentary concert provided.

We wish to record our profound grief at the death of former State Superintendent of Public Instruction, Delos Fall, who was for many years an educational leader in this state. His unfailing enthusiasm, untiring labor, and large vision in educational policies, coupled with his personal

friendliness will make his name an inspiring memory in the annals of Michigan educational history for all time to come.

Hon. Thomas E. Johnson, our State Superintendent, has set forth a legislative program which, we believe, stands for the added effectiveness of the schools of this state in the interests of the boys and girls, the future citizens of our great commonwealth. We want him and the Legislature to know that we heartily endorse his policies and pledge ourselves to do all things in our power to bring this program to a successful conclusion.

Experience has shown that secret societies, which have developed in our high schools in imitation of college fraternities, are undesirable. They foster a spirit of exclusiveness and snobbery quite out of harmony with the democratic purposes of the high school. They frequently encourage lawlessness and poor scholarship. In view of these facts, we commend the bill now before the Legislature defining such organizations and effectively providing for their abolishment.

We view with dismay the apparent reactionary policy of certain responsible agencies of state government in dealing with our teacher-training institutions. Trained teachers are indispensable to good schools and good schools are fundamental to the perpetuity of our prosperity, ideals, or even our existence as a civilized nation. We are unalterably opposed to the lowering of standards for teachers in high schools or any other department of our public school system. At this time especially the best teachers are hardly adequate for the great responsibility placed upon our schools and we are convinced that teachers of less training and poorer quality mean inevitable disaster. Every means in our power should be used to bring this alarming situation to the attention of school patrons and to insist that the quality of teachers can be maintained only by good salaries and adequate support of higher schools of training.

The Fess bill now before Congress, has intended to provide cooperative support for instruction in home economics, has our hearty endorsement.

We reaffirm our belief that Michigan should follow the lead of other progressive states in providing an actuarially sound retirement system for teachers.

This Club is strongly opposed to repeal or amendment at this time of the part-time school law known as the James Act. This law should be tried out thoroughly for a period of at least two years before it is modified in any way.

Respectfully submitted,

C. W. McCALLUM,
CHAS. C. WILCOX,
J. B. EDMONSON,
R. W. WARD,
L. L. FORSYTHE.

Program of General Sessions

Eastern Standard Time

Thursday Morning, March 31

Joint Session of the Schoolmasters' Club and Short-Term Institute

9:30 o'clock

Hill Auditorium

President—Wm. E. Praeger, Kalamazoo.

Vice-President—Helen B. King, Saginaw.

Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.

1. Short Business Meeting.
2. 10:00 o'clock. Lecture: Functioning Types of Mental Discipline in Secondary Schools, Professor David Snedden, Columbia University.
3. 11:00 o'clock. Lecture: Changing Conceptions of the Secondary School, Dean E. P. Cubberley, Stanford University, Cal.

MICHIGAN FEDERATION OF TEACHERS' CLUBS

4:30 o'clock

Room B-2, High School

Chairman—Miss Cora M. Riggs.

General Business of the Officers and Committees of the Federation.

MICHIGAN INTERSCHOLASTIC ATHLETIC ASSOCIATION

4:00 o'clock

Room B-8, High School

Chairman—Principal A. W. Krause, Grand Rapids.

Secretary—Mr. Ora Travis, Pontiac.

1. General Discussion of Interscholastic Athletics.
2. Business Meeting.

Thursday Evening, March 31

8:00 o'clock

Hill Auditorium

Concert by Ann Arbor High School students under direction of George Oscar Bowen.

(Compliments of the University Musical Society. Complimentary to all members of the Schoolmasters' Club who pay their dues for 1921 in advance. Reserved seat tickets will be sent by mail to all members whose dues are in the hands of the Secretary, L. P. Jocelyn, by March 26. Tickets may also be procured at the Secretary's desk at headquarters from 3 to 6 P. M. on Thursday, March 31.)

Friday Morning, April 1

(Admission by badge)

8:00 o'clock

Hill Auditorium

Chairman—Wm. Praeger, Kalamazoo College.

Secretary—L. P. Jocelyn, Ann Arbor.

9:30 o'clock. Short business meeting.

1. 10:00 o'clock. Address: The Function of Music in Education.
Professor Ralph L. Baldwin, Hartford, Conn.
2. 11:00 o'clock. Address: Homogenous Classification of School
Children According to Ability as Shown on Psychological
Tests, Professor W. B. Reeve, College of Education, University of Minnesota.

WOMEN'S ANNUAL LUNCHEON

Saturday, April 2, at Barbour Gymnasium, for undergraduates, alumnae, and friends. Tickets are \$1.00 each and may be obtained from the office of the Dean of Women. The committee in charge will appreciate an early purchase of tickets. President M. L. Burton will deliver an address on the proposed Women's Building.

Program of Conferences

CLASSICAL INSTITUTE

Wednesday Afternoon, March 30

Upper Hall, Alumni Building

4:15 o'clock

1. Athens Today and Yesterday (Illustrated), Mr. George R. Swain, University of Michigan.

Wednesday Evening, March 30

8:00 o'clock

2. University Lecture. Greek and Roman Sculpture in American Collections, (Illustrated), Professor George H. Chase, Harvard University.

CLASSICAL INSTITUTE AND TWENTY-SEVENTH CLASSICAL CONFERENCE

Thursday Forenoon, March 31

Upper Hall, Alumni Building

9:30 o'clock

Professor H. A. Sanders, presiding

President—Miss Clara J. Allison, Michigan State Normal College.

Vice-President—Albert R. Crittenden, University of Michigan.

Secretary—Miss Dorothy M. Roehm, Northwestern High School, Detroit.

3. A Classification Scheme in Modern Languages,
Dr. Frank E. Robbins, University of Michigan.
4. The New York Syllabus for Junior High School Latin,
Miss Belle Pratt, Albion High School.
5. My Experience With Gifted Students,
Miss Lavanche Rieger, Battle Creek High School.
6. The Persistence of the Ciceronian Sentence in English,
Dr. P. H. Hembdt, Albion College.

NOTE.—At the sessions on Thursday, there will be an exhibit of new and useful books and illustrative material, in charge of Professor Bruno Meinecke.

11:00 o'clock

Joint Session with the Anthropological Section of the Michigan Academy of Science.

Upper Hall, Alumni Building

7. University Lecture. The Excavations of the American Expedition at Sardis, (Illustrated),
Professor George H. Chase, Harvard University.

Thursday Noon

Classical Luncheon in the parlors of the Congregational Church,
at 12:15, followed by talks and a social hour.

Tickets, 75 cents, can be obtained at the door.

Thursday Afternoon, March 31

Upper Hall, Alumni Building

3:00 o'clock

(Admission by badge)

Professor B. L. D'Ooge, Michigan State Normal College, presiding.

8. The Course of Study in Second Year Latin,
Discussion opened by Miss Grace Smith, Detroit.
Mr. Ora Travis, Pontiac.
Miss Frances Brown, Detroit.
Miss Florence Barnard, Saginaw.
Miss Frances Greene, Detroit.
Miss Ruth Bailey, Mt. Clemens.
Miss E. Mae Browne, Detroit.
Miss Gertrude Moore, Coldwater.

General discussion.

4:15 o'clock

9. A Papyrus Manuscript of the Old Testament (Illustrated,
Professor Henry A. Sanders, University of Michigan.

Thursday Evening, March 31

Joint Meeting with the Anthropological Section, Michigan Academy of Science.

Natural Science Auditorium

8:00 o'clock

- Time-Perspective in Culture and Race,
Dr. Clark Wissler, Curator American Museum of Natural History; Chairman, Division of Anthropology, National Research Council.

Friday Afternoon, April 1

Classical Institute and Classical Conference

Upper Hall, Alumni Building

2:00 o'clock

(Admission by badge)

10. The Latin Cases,
Professor Mark Bailey, Kalamazoo College.
11. "Pius Aeneas,"
Professor Mary E. Armstrong, Olivet College.
12. Two Notes on Greek Religion:
(a) Sacred Stones in Homer,
(b) The Suppliant's Bough,
Professor Campbell Bonner, University of Michigan.
Election of Officers of the Classical Conference.
13. Teaching the Derivation of English Words from Latin,
Miss Isabella Black, Northwestern High School, Detroit.
Discussion: The Correlation of Latin and English,
Mrs. H. S. Denison, Davison,
Mr. Fred Tiedgen, Saginaw,
Mrs. A. C. Fisher, Olivet.

4:00 o'clock

Room A, first floor, Alumni Building

14. University Lecture. Recent Work on the Acropolis (Illustrated),
Professor George H. Chase, Harvard University.

MODERN LANGUAGE CONFERENCE

Chairman—G. E. Van Loon, Highland Park.

Secretary—Professor A. G. Canfield, University of Michigan.

Thursday Afternoon, March 31

(Admission by badge)

2:30 o'clock

Room 203, University Hall

Miss Grace Hill, Central High School, Detroit, presiding.

1. Some Practical Suggestions,
Mr. M. Pargment, University of Michigan.
2. La Instruccion Publica en Espana,
Senor Juan Alfonso De Gomar, Junior College, Detroit.
3. Pre-determination Tests,
Miss Winifred Hubbell, Highland Park High School.
4. L'Enseignement du Francais Commercial,
M. Rodrigue Berteault, Central High School, Detroit.

There will be a luncheon for teachers of Modern Languages and friends both Thursday and Friday at the Michigan Union at noon. Those expecting to be present at the luncheon are requested to notify Professor H. P. Thieme, No. 3 Geddes Heights, Ann Arbor.

Friday Afternoon, April 1

(Admission by badge)

2:00 o'clock

Room 203, University Hall

Gordon E. Van Loon, Highland Park High School, presiding.

1. A Summer in Spain,
Miss Florence Lyon, Normal College, Ypsilanti.
 2. Impressions sur l'Enseignement Francais en Amerique,
Mlle. Jeanne Brochery, Highland Park High School.
 3. Discussion of the New Course of Study.
 4. The Preparation of Students from the High Schools. The Viewpoint of the University,
Dr. H. P. Thieme, University of Michigan.
 5. The Teaching of Modern Languages in the High School. A Principal's Viewpoint,
Principal George Murdock, Nordstrum High School, Detroit.
- Business Meeting.

ENGLISH CONFERENCE

Thursday Afternoon, March 31

(Admission by badge)

1:45 o'clock

Pattengill Auditorium, High School

Chairman—George Starr Lasher, University of Michigan.

Secretary—Miss Mary Farnsworth, Cass Technical High School, Detroit.

Debate: Resolved, That English work in high schools should be separated into distinct composition courses and literature courses of semester length.

Affirmative—Principal Edward L. Miller, Northern High School, Detroit; Miss Alice Marsh, Nordstrum High School, Detroit.

Negative—Miss Ruth Huston, Plymouth High School, Plymouth; Miss Helen M. Streater, Highland Park High School, Highland Park.

NOTE.—Each speaker will be allowed thirteen minutes for constructive argument and seven minutes for rebuttal, after which the question will be open for general discussion.

Friday Afternoon, April 1

(Admission by badge)

1:45 o'clock

Pattengill Auditorium, High School

Symposium: What's the Matter with the English in High Schools?
Ten-Minute DiscussionsFrom the Point of View of a University Freshman,
Charles J. Dresbach, '24, University of Michigan.From the Point of View of a High-School Principal,
Principal F. L. Bliss, Jackson High School, Jackson.From the Point of View of a Business Man,
J. C. Christensen, Assistant Secretary of University of Michigan.From the Point of View of a Teacher of College Freshmen,
Professor Ray W. Hamilton, Alma College.From the Point of View of a Librarian,
Miss Elizabeth Knapp, Detroit Public Library, Detroit.From the Point of View of a Teacher of Foreign Languages,
Professor J. W. Scholl, University of Michigan.

From the Point of View of a Head of a High-School English Department,

General Discussion: What's to Be Done about It?

HISTORY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31

2:00 o'clock

Room C-3, High School

Chairman—Carl E. Pray, Michigan State Normal College, Ypsilanti.
Secretary—Mary Harden, South High, Grand Rapids.

1. Standardization of Grade Merit in History,
Mildred Taylor, Highland Park.
2. Some Problems in the Handling of Supplementary Reading in History,
Anna W. Field, Michigan State Normal College.
3. What Shall the History Teacher Do for Self-Improvement?
Samuel Levin, Junior College, Detroit.
4. Address: Romantic Material in Michigan History for the Public Schools,
Professor R. Clyde Ford, Michigan State Normal College.
5. Business Meeting.

Friday Afternoon, April 1

(Open to the public)

3:00 o'clock

New Science Building Auditorium

Address: Reflections on the American Revolution,
Professor C. M. Andrews, Yale University.

PHYSICS AND CHEMISTRY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31

1:30 o'clock

Physics Laboratory, West Lecture Room

Chairman—J. E. Fox, Western State Normal.

Vice-Chairman—W. F. Lewis, Northern State Normal.

Secretary—D. L. Rich, University of Michigan.

1. The Relation of Mathematics to Physics,
T. M. Roop, Kalamazoo College.
Discussion, opened by Edwin Morrison, Michigan Agricultural College.
2. The Function of High School Physics,
Eugene W. Butler, Michigan Agricultural College.
Discussion, opened by Walter Horst, Three Rivers High School.
3. Charcoal Activation, with several experiments,
H. H. Sheldon, University of Michigan.
4. Standardization of Chemistry Tests,
Miss Colette Dauner, Milan High School.
Discussion, opened by _____.
5. What Can Be Done with Wireless Telegraphy in the High School?
Miss Katherine Chamberlain, Northwestern High School, Detroit.
Discussion, Is Wireless in the high school desirable?, opened by
Alfred Sirrine, Holland High School, and
Geo. I. Altenburg, Highland Park Junior College.
6. Some Interesting Things in High School Chemistry for Teachers and Pupils,
H. W. Baker, Battle Creek.
7. Brief Business Meeting. Election of Officers.

Friday Afternoon, April 1

12:15 o'clock

Physics-Chemistry Luncheon, Lane Hall, 75 cents.

2:00 o'clock

Physics Laboratory, West Lecture Room

8. Some Relations between Chemistry and Light,
J. H. Hodges, University of Michigan.
Discussion.
9. Recent Developments in Our Notions of the Constitution of Matter,
E. F. Barker, National Research Council Fellow, University of Michigan.
Discussion.
10. The Foundation for More Work in Chemistry,
W. G. Smeaton, University of Michigan.
Discussion.
11. Brief Experimental Demonstrations. A few are promised, several more are desired.
12. Miscellaneous Business.
13. Some Interesting Things for Teachers of Chemistry,
H. W. Baker, Battle Creek High School.
14. Chemistry Exhibits,
LeRoy A. Pratt, Flint High School.
15. Velocity of Reactions (Lecture Experiments),
B. W. Peet, State Normal College, Ypsilanti.
16. a. A Laboratory Record Blank,
(b) The Multimeter as a Gas Generator,
Robert Ayers, Mt. Pleasant High School.

MATHEMATICAL CONFERENCE

(Admission by badge)

Thursday Afternoon March 31

12:00

Luncheon at Michigan Union (Reservation for the luncheon may be made by writing Miss Julia M. Liskow, 90 Stimson Place, Detroit, Michigan, before March 26. Tickets, seventy-five cents.

2:00 o'clock

Auditorium, New Science Building

Chairman—Miss Orpha E. Worden, Detroit Teachers' College, Detroit.
 Secretary—Miss Julia M. Liskow, Western High School, Detroit.

1. Standardized Tests in Mathematics in Grand Rapids and What Has Been Done in Consequence of Results,
 Mr. Charles D. Dawson, Assistant Superintendent of Schools, Grand Rapids, Michigan.
 Discussion led by Mr. S. A. Courtis, Dean of Detroit Teachers' College, Detroit, Michigan.
2. The Work of the National Committee on Mathematical Requirements,
 Mr. Charles N. Moore, Member of National Committee on Mathematical Requirements, University of Cincinnati.
 Discussion led by Mr. Albertus Darnell, Detroit Junior College.

Friday Afternoon, April 1

1:30 o'clock

Room B, Law Building

3. Some of the Most Common Weaknesses in Mathematics Among Engineering Freshmen,
 Professor L. J. Rouse, University of Michigan.
4. The Future Development of Mathematical Education,
 Mr. Charles N. Moore, University of Cincinnati, Cincinnati, Ohio.
5. General Mathematics for the High School: Its Purpose and Content,
 Mr. W. D. Reeve, The National Council of Teachers of Mathematics, University High School, Minneapolis, Minnesota.

Joint Meeting of Schoolmasters' Club and University Faculty.**Conference on University Entrance Requirements.**

3:00 o'clock

Room B, Law Building

Chairman—Principal H. S. Doolittle, Calumet.
 Secretary—Professor A. H. White, University of Michigan.

Five-Minute Papers

1. A Stricter Discrimination in the Official Recommendations made by Principals of High Schools,
 Professor J. B. Edmonson.
2. Classification of High Schools in the Light of Performance of Freshmen in the University,
 Professor J. B. Edmonson.
3. Elementary and Advanced Units in High School Courses,
 Professor H. A. Sanders.
4. Psychological Tests as a Criterion for Admission to the University,
 Professor A. G. Hall.
5. Discussion.

BIOLOGICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31

2:00 o'clock

Room F 214, New Science Building

Chairman—Miss Lida Rogers, Holland.

Secretary—Miss Helen B. King, Saginaw.

1. Laboratory Methods:
 - (a) Botany.
 - (b) Methods in Handling Lower Forms of Animal Life,
Mr. A. G. Papworth, Detroit Junior College.
2. Final Report of N. E. A. Committee on Biology,
Dr. L. H. Harvey, Western Normal, Kalamazoo.
3. Impressions of the Value of a Course in General Biology over a
Specialized One,
Miss Elizabeth Sundstrom, Western High School, Detroit.
4. A Measurement System to Evaluate the Achievement of Biology
Students; Basis for, Methods, etc.,
Miss Alma Ackley, Wayne.
5. Discussion,
Mr. J. R. Locke, Highland Park.

Friday Afternoon, April 1

12:15 o'clock

Luncheon, Room B-100, N. S. Bldg.

2:00 o'clock

Business Meeting.

6. Symposium: Serumtherapy and Immunity.
 - (a) Physiological Basis of Immunity,
V. C. Vaughan, M.D., University of Michigan.
 - (b) Preparation of Serums and Vaccines, (Illustrated),
Newell S. Ferry, M.D., Parke, Davis & Co., Detroit.
 - (c) Poisoning from Bacillus Botulinus; Cause, Prevention, Treatment,
Mrs. Zae Northrup Wyant, Michigan Agricultural College.
7. General Discussion.

COMMERCIAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31

2:00 o'clock

Room C-17, High School

Chairman—Mr. L. H. Rich, High School of Commerce, Detroit.

Vice-Chairman—Mr. Geo. Rowan, Mt. Clemens High School.

Secretary—Miss Ruth Seeley, Western High School, Detroit.

1. Business as a Profession,
Professor I. Leo Sharfman, University of Michigan.
2. Educational Value of Mechanical Figuring,
Mr. J. W. McCaslin, Detroit.
3. The Power of Personality in Commercial Education,
Harry A. Spillman, New York City.

GEOGRAPHY AND GEOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31**Friday Afternoon, April 1**

2:00 o'clock

Room 217-G, Natural Science Building

(See final program)

ART CONFERENCE

(Admission by badge)

Friday Afternoon, April 1

2:15 o'clock

Room A, Alumni Building

Chairman—Bertha Goodison, Normal College, Ypsilanti.

Secretary—Mrs. DeWitt, Ypsilanti.

1. Address: Tendencies of Industrial Art,
Shirley Owens, Cass Technical High School, Detroit.
2. "Dynamic Symmetry,"
Rose Netzorg, State Normal, Kalamazoo.
3. Discussion—"The Need of a State Supervisor of Art,"
Opened by Professor Emil Lorch, College of Architecture,
University of Michigan.

An exhibition of Color and Design work from four prominent art schools of the country, will be shown in the art gallery of the Alumni Memorial building.

MANUAL TRAINING CONFERENCE

12:15 P. M. Annual Vocational Luncheon at Michigan Union, \$1.00.

(Admission by badge)

2:00 o'clock

Room C-1, High School

Friday Afternoon, April 1

Chairman—Jos. D. Bicknell, Director of Manual and Industrial Training, Muskegon, Michigan.

1. The Continuation School in Michigan,
K. G. Smith, State Director of Vocational Education, Lansing, Michigan.
2. The Organization of a Continuation School in a Town of Less than Twenty-five Thousand Population,
Arthur C. Warren, Asst. Director Continuation School, Adrian, Michigan.
3. The Organization of a Continuation School in a Town of More than Twenty-five Thousand Population,
Wallace F. Watt, Director of Continuation School, Battle Creek, Michigan.
4. Adult Training in the Continuation School,
E. G. Allen, Asst. Principal, Cass Technical High School, Detroit, Michigan.
5. The Continuation School Teacher,
Dr. Geo. E. Meyers, Professor of Vocational Education, University of Michigan.
6. Summary.

EDUCATIONAL PSYCHOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31

2:00 o'clock

Room B-6, High School

Chairman—Mr. S. A. Courtis, Detroit.

Secretary—Mr. J. F. Thomas, Detroit.

Each paper limited to fifteen minutes.

1. Self-help Lessons for Teaching Beginning Reading,
Miss Nila Smith, Asst Supervisor of Kindergarten-Primary
Grades, Detroit.
2. Putting Democracy into the Teaching of Handwriting,
(Illustrated with moving pictures),
Miss Lena A. Shaw, Supervisor of Penmanship, Detroit.
3. Measurement of Power in Arithmetic,
Mr. C. L. Thiele, Supervisor of Arithmetic, Detroit.
4. Measurement of Students on Probation in the University,
Prof. G. S. Whipple, University of Michigan.
5. Determination of Ability in Spelling,
Miss M. I. Rasey, Asst. Supervisor of Instructional Research,
Detroit.
6. Correction of Scores as a Basis of Comparison,
Miss M. Kastenbergh, Asst. Supervisor of Instructional Re-
search, Detroit.

HOME ECONOMICS CONFERENCE

(Admission by badge)

Friday Afternoon, April 1

2:00 o'clock

Room B-1, High School

Chairman—Julia P. Grant, Detroit.

Secretary—Miss Hall.

1. Home Demonstration Work,
Mrs. Louise H. Campbell, State Home Demonstration
Leader.
2. The Aims of the State Federation of Clubs in Home Economics,
Mrs. W. R. Alvord, President of Michigan State Federation
of Women's Clubs.
3. Subject to be announced.
Dean Mary Sweeny, President National Home Economics
Association.

HIGH SCHOOL LIBRARY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 31

2:00 o'clock

Room 110, University Library

Chairman—Mrs. Ellen M. Linton, Cass Technical High School, Detroit.
 Secretary—Miss Ellen Hoffman, Public School Library, Ypsilanti.

1. The High School Library as a Training Ground for the Use of Other Libraries, Particularly University Libraries,
 Mr. Wm. W. Bishop, Librarian, University of Michigan.
2. The Year's Progress in High School Library Development,
 Mr. C. C. Certain, Northwestern High School, Detroit.
3. Report on Conditions in High School Libraries in Michigan,
 Chairman—Miss Maude Allen, Librarian, Detroit Board of Education.
4. Round Table Discussion,
 Leader—Miss Anelia Poray, Northeastern High School, Detroit.
5. Business meeting.

Friday, April 1

11:30 o'clock

A Visit to the University Bindery.

12:30 o'clock

Luncheon served in Staff Dining Room, University Library.

If you plan to attend, please notify Miss Hoffman before Mar. 28.

1:45 o'clock

Room 110, University Library

6. Subject to be announced later,
 Dr. R. Clyde Ford, State Normal College, Ypsilanti.
 7. A Shelf of New Books,
 Mr. F. L. D. Goodrich, Reference Librarian, University of Michigan.
 8. Binding Economies,
 Mr. W. C. Hollands, Supt. of Binding and Printing, University Library.
- Exhibits: (1) A. L. A. Bookbinding Exhibit.
 (2) High School Libraries of Detroit.

ADMINISTRATIVE TEACHERS' CONFERENCE

(House Principals, Grade Principals, Session Room Teachers,
 and all High School Principals interested)
 (Admission by badge)

Thursday Afternoon, March 31

1:15 o'clock

Tappan Hall

1. Vocational Guidance for Boys,
 Principal I. B. Gilbert, Union High School, Grand Rapids.
2. Social Guidance of High School Students,
 Miss Grace Greenwood, Ann Arbor.
3. Intellectual Guidance of High School Students,
 Mrs. Bessie L. Priddy, Dean of Women, Michigan State Normal College.
4. Citizenship of Youth,
 Principal Floyd Ferguson, Mt. Pleasant.

MUSIC CONFERENCE**Thursday Afternoon, March 31**

2:00 o'clock

University School of Music

Chairman—George Oscar Bowen.

Topic: What should be the standard of training of the Supervisor of Music in Michigan?

Discussion of different phases and viewpoints.

1. The State Normal School,
Miss Clyde E. Foster, Michigan State Normal College, Ypsilanti.
2. The Private Conservatory of Music,
Francis L. York, Detroit Conservatory of Music.
3. The Superintendent of Schools,
Leslie A. Butler, Ann Arbor.
4. The Supervisor of Music,
Miss Blanche Youngs, Cadillac.
5. The State Department of Public Instruction,
H. Z. Wilbur, Assistant State Superintendent.

Thursday Evening

8:00 o'clock

Hill Auditorium

Concert by Ann Arbor High School Students.

Friday, April 1

12:00 o'clock

Luncheon at the Michigan Union for all visiting and local musicians interested in the program. The topic for discussion will be: "Credits for Applied Music in the High School." Who? What? When? How?

The luncheon will be served at one dollar (\$1.00) per plate. All supervisors and other musicians who desire to attend should send their names to the chairman, George Oscar Bowen, University School of Music, Ann Arbor, not later than March 30th, as it is necessary to guarantee a certain number.

**MICHIGAN SOCIETY FOR THE PROMOTION OF
AGRICULTURAL TEACHING****Friday Afternoon, April 1**

1:30 o'clock

Law Lecture Room

1. Some Problems of Teaching Plant Life,
J. H. Bartley, Mason.
Discussion, O. W. Laidlaw, Tecumseh.
 2. The Scope of Farm Management in the Secondary School,
Z. W. Storrs, Flushing.
Discussion, L. R. Staney, Sturgis.
 3. One Way to Teach Soils in the Secondary School,
G. C. White, Dundee.
Discussion, Paul Rood, Goodrich.
Round Table Discussion, led by Supervisor E. E. Gallup.
- Topics:
- "Salaries for Next Year."
 - "Project Work and Reports."
 - "Community Work."
 - "Summer Conference at M. A. C."

Friday Evening, April 1

7:30 o'clock

1. Business Session.
2. Address, New Features in the Training of Teachers,
Professor E. Lyon Grover, M. A. C.
3. Address, The Effect of Vocational Instruction on the Community,
Supt. Chas. Poor, Pres. State Teachers' Association.

SPECIAL VOCATIONAL EDUCATIONAL MEETING**Thursday Afternoon, March 31**

2:45 o'clock

Room 106, Tappan Hall

Chairman—Professor George E. Myers, University of Michigan.

Address: General Problems of Vocational Education,

Dr. David Snedden, Professor of Education, Teachers College, Columbia University.

MANUAL ARTS AND INDUSTRIAL EDUCATION CONFERENCE**Thursday Afternoon, March 31**

4:20 o'clock

Room 106, Tappan Hall

Chairman—Percy A. Angove, Ionia.

Secretary—C. A. Wardner, Jackson.

Special meeting of the Manual Arts and Industrial Education Section of the M. S. T. A. directly following the Vocational Education meeting, for the purpose of discussing matters of great importance to the Section as a whole, and to appoint investigating committees. Discussion led by Dr. Myers, Professor of Industrial Education of the University of Michigan, and others whose names we are unable to announce at this time. All members or those interested are urged to attend.

Members of the Schoolmasters' Club, 1921

Members for Ten or More Consecutive Years

ADRIAN Reed, E. J.	Mackenzie, David Mutschel, Matilda. Thompson, E. C.	GRAND RAPIDS Greeson, W. A. Hulst, Cornelia, S.
ALBION COLLEGE Goodrich, F. S.	Thompson, Marg't E.	HIGHLAND PARK Knapp, T. J.
ANN ARBOR Adams, O. V. Bennett, Ella M. Butler, L. A. Chute, H. N. Essery, E. E. Forsythe, L. L. Highley, A. M. Jocelyn, L. P. Kirchhofer, Marie Nutt, H. D. O'Brien, Sarah Porter, Alice Purtell, Catherine Schaible, Ida M. Slauson, H. M. Wines, L. D.	DETROIT EASTERN Harvey, Caroline C. Linn, Flora R. Pettee, Edith E. Strubel, R. H.	Margah, Katherine C. Smith, R. H.
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BAY CITY Sharp, E. M.	DETROIT NORTHEASTERN Cooper, L. G. Fyan, Lila E. Kimball, Edith M.	JACKSON Marsh, E. O. Wilcox, Elizabeth L.
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DETROIT Arhury, F. W. Bishop, Mrs. H. A. Boyer, C. J. Cody, Frank Guysi, Alice V. Kepler, F. R. Merrill, John Shaw, E. R.	DETROIT NORTHWESTERN Alley, Sadie M. Rivett, B. J. Wentworth, W. H.	KALAMAZOO, WEST- ERN NORMAL Burnham, Ernest Everett, J. P. Harvey, L. H. Waldo, D. B.
DET. CASS TECH. Comfort, B. F. Cooke, C. S. Farnsworth, Mary F.	SOUTHEASTERN Corns, J. H. Phelps, Nancy S. Whitney, Edward	LANSING Gallup, E. E.
DETROIT CENTRAL Bates, F. O. Bishop, Helen L. Brown, Jessie M. Chase, Ethel W. B. Copeland, Cornelia A. Darnell, Albertus Gee, E. F. Hine, Katherine G. Hull, Isabella H. Irwin, F. C.	DETROIT, TEACH- ERS' COLLEGE Conover, L. Lenore Courtis, S. A.	LINDEN Burr, C. J.
	DETROIT WESTERN Chapman, I. E. Frutig, Marie L. Hempsted, Joanna K. Hickok, D. W. Holmes, F. H. Liskow, Julia M. Meiser, Augusta B. Pitts, Dora H. Roper, Gertrude L. Waples, Marcia P. Weir, W. W. Wilkinson, A. O.	MARQUETTE, NORTH'N NORMAL Lewis, W. F. Spooner, C. C.
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		MT. PLEASANT, CENTRAL NORMAL Pearce, W. H. Warriner, E. C.
		MUSKEGON Craig, J. A.
		OAK PARK, ILL. Lee, L. B.
		OXFORD, OHIO Bishop, Elizabeth L.
		PONTIAC Dudley, S. M. Travis, Ora Hazelton, R.
		RIVER ROUGE McDonald, A.
		SAGINAW King, Helen R. Warner, W. W.
		SUPERIOR, WIS. Wade, C. G.

UNIVERSITY

Beman, W. W.
Bonner, Campbell
Bradshaw, J. W.
Canfield, A. G.
Crittenden, A. R.
Cross, A. L.
Dow, E. W.
Edmonson, J. B.
Finney, B. A.
Hall, A. G.
Lichty, D. M.
Markley, J. L.
Meador, C. L.

Newcombe, F. C.

Pollock, J. B.
Rich, D. L.
Running, T. R.
Scott, F. N.
Springer, D. W.
Tilley, M. P.
Wenley, R. M.
Williams, N. H.
Winkler, Max
Winter, J. G.
Ziwet, A.

YPSILANTI

Ross, DeForrest
Hardy, Carrie A.

YPSILANTI,

CLEARY'S BUS. COL.

Cleary, P. R.

YPSILANTI, NOR-

MAL COLLEGE

D'Ooge, B. L.

Gorton, F. R.

Harvey, N. A.

Lyman, E. A.

Peet, B. W.

Priddy, Bessie L.

Members for Five or More Consecutive Years

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Goodrich, F. S.

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Bennett, Ella M.
Breed, Gertrude T.
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Chute, H. N.
Downs, Lulu
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Forsythe, L. L.
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Glasier, Lucy
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Highley, A. M.
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Tinkham, Lona C.
Weinmann, Louise
Wines, L. D.

BATTLE CREEK

Atkinson, H. R.
Coburn, W. G.
Krell, Carrie

BAY CITY

Sharp, E. M.

BIG RAPIDS,

FERRIS INST.

Ferris, W. N.

BIRMINGHAM

Toothacker, W. S.

CALUMET

Doolittle, H. S.

CHICAGO

Johnson, H. M.

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Arbury, F. W.
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Cody, Frank
Guys, Alice V.
Kepler, F. R.
Merrill, John
Shaw, E. R.
Thomas, J. F.
Trybon, J. H.

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Comfort, B. F.
Cooke, C. S.
Farnsworth, Mary F.
Keal, Harry M.

DETROIT, CENTRAL
AND JR. COLLEGE

Bates, F. O.
Bird, E. J.
Bishop, Helen L.
Bowerman, C. B.
Brown, Jessie
Brown, J. S.
Chase, Ethel W. B.
Collins, John A.
Conover, Kate B.
Copeland, Cornelia A.
Darnell, Albertus
de Gomar, J. A.
Gee, E. F.

Harrah, Grace E.

Hine, Katherine G.

Hull, Isabella H.

Irland, Helen

Irwin, F. C.

Jones, Grace C.

Levin, S. M.

Mackenzie, David

Millard, Grace G.

Mutschel, Matilda

Nielsen, N. C.

Sargeant, Charlotte H.

Thompson, E. C.

Thompson, Marg't E.

DETROIT EASTERN

Foster, Christine
Fuhry, Edw. G.
Harvey, Caroline C.
Linn, Flora R.
Mann, L. B.
Merriam, A. R.
Pettee, Edith E.
Strubel, R. H.

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McMillan, D. W.
Marsh, Alice Louise
Murdock, G. W.

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Fyan, Lila E.
Kimball, Edith M.
Raycraft, R. E.

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Isbell, W. N.
Miller, E. L.
Miner, Mary L.
Tanis, J. E.

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Alley, Sadie M.
Carey, Eleanor J.

Clough, Susanna A.
Emmons, Deda L.
Jones, A. F.
Porter, J. E.
Rivett, B. J.
Roehm, Dorothy
Wentworth, W. H.
Wilson, Jean W.

DETROIT

SOUTHEASTERN

Corns, J. H.
Parmerlee, E. Grace
Phelps, Nancy S.
Whitney, Edward

DETROIT TEACHERS' COLLEGE

Connely, Mildred M.
Conover, L. Lenore
Courtis, S. A.
Lindquist, Lily

DETROIT, UNIVERSITY SCHOOL

Fletcher, D. H.

DETROIT WESTERN

Chapman, I. E.
Frutig, Marie L.
Hempstead, Joanna K.
Hickok, D. W.
Holmes, F. H.
Liskow, Julia M.
Meiser, Augusta B.
Parker, Flora E.
Pitts, Dora H.
Roper, Gertrude L.
Sturm, Alice K.
Waples, Marcia P.
Weir, W. W.
Wilkinson, A. O.
Woodward, Mabel C.

DETROIT, WILKINS H. S. OF COMMERCE

Stowell, B. D.

E. LANSING (M.A.C.)

Bessey, E. A.

FENTON

Dalrymple, J. A.

FLINT

Parmelee, L. S.
Puffer, W. J.
Wellwood, J. E.

GRAND RAPIDS

Greeson, W. A.
Harden, Mary
Hulst, Cornelia S.
Lindberg, Anna E.

HASTINGS

Ehle, C. E.

HIGHLAND PARK

Altenburg, G. I.
Knapp, T. J.

Locke, J. R.
Margah, Katherine C.
Palmer, Sadie J.
Prakken, Wm.
Smith, R. H.

Van Loon, G. E.
Wines, Emma

HILLSDALE

Mauck, J. W.

HOWELL

Sharpe, E. Alma

JACKSON

Coy, Jennie M.
Marsh, E. O.
Smith, Syra
Wilcox, Elizabeth L.

KALAMAZOO

Drake, E. H.

KALAMAZOO

COLLEGE

Praeger, Wm. E.
Williams, C. B.

KALAMAZOO, WESTERN NORMAL

Burnham, Ernest
Everett, J. P.
Harvey, L. H.
Hoekje, J. C.
Waldo, D. B.

LANSING

Bristol, Nina E.
Gallup, E. E.

LINDEN

Burr, C. J.

MARQUETTE, NORTH'N NORMAL

Lewis, W. F.
Spoonor, C. C.

MONROE

Cantrick, G. T.
Gilday, Selma
Wagner, Martha

MT. CLEMENS

Fast, L. W.

MT. PLEASANT,

CENTRAL NORMAL

Larzelere, C. S.
Pearce, W. H.
Warriner, E. C.

MUSKEGON

Craig, J. A.
Fuller, E. G.

OAK PARK, ILL.

Lee, L. B.

OXFORD, OHIO

Bishop, Elizabeth L.

PAINESDALE

Jeffers, F. A.

PONTIAC

Dudley, S. M.

Hazelton, R.
Travis, O.

RIVER ROUGE

McDonald, A.

SAGINAW

King, Helen B.
Warner, W. W.

ST. JOHNS

Buck, F. P.

SUPERIOR, WIS.

Wade, C. G.

UNIVERSITY

Beman, W. W.
Bishop, W. W.
Bonner, Campbell
Bradshaw, J. W.
Butts, W. H.
Canfield, A. G.
Cooley, M. E.
Crittenden, A. R.

Cross, A. L.

Davis, C. O.

Dow, E. W.

Edmonson, J. B.

Finney, B. A.

Ford, W. B.

Hall, A. G.

Jackson, G. L.

Karpinski, L. C.

Kelsey, F. W.

Kraus, E. H.

La Rue, G. R.

Lichty, D. M.

Lorch, Emil

Markley, J. L.

Meader, C. L.

Moore, Samuel

Newcombe, F. C.

Pollock, J. B.

Randall, H. M.

Rich, D. L.

Running, T. R.

Scott, F. N.

Shull, A. F.

Springer, D. W.

Tilley, M. P.

VanTyne, C. H.

Wenley, R. M.

Whitney, A. S.

Williams, N. H.

Winkler, Max

Winter, J. G.

Ziwet, A.

YPSILANTI

Hardy Carrie A.

Lewis, Caroline

Ross, De Forrest

YPSILANTI,

CLEARY'S BUS. COL.

Cleary, P. R.

YPSILANTI, NOR-
MAL COLLEGE

Alpermann, Johanna
D'Ooge, B. L.
Elliott, C. M.
Ford, R. C.

French, Martha H.
Gorton, F. R.
Harvey, N. A.
Lott, H. C.
Lyman, E. A.
McKay, F. B.

McKenny, C. C.
Norris, O. O.
Peet, B. W.
Pray, C. E.
Priddy, Bessie L.
Smith, B. G.

List of Members for 1921

ADRIAN

Buck, Gertrude
Hall, O. I.
Jones, E. M.
Reed, E. J.
Sutton, Inez
Warren, A. C.

ALBION

Case, Lucretia
Head, W. F.
Neigarth, M. S.
Pratt, Belle
Stetler, Gertrude
Thornton, C. A.

ALBION COLLEGE

Ewbank, H. L.
Goodrich, F. S.
Harrop, A. H.
Hembdt, P. H.
Pitkin, Orpha O.
Rood, C. E.
Sleight, E. R.

ALGONAC

Carpenter, R. R.

ALLEGAN

Bement, Robina E.
Flanigan, O. F.

ALMA

Hamilton, R. W.
MacCurdy, H. M.
Taft, H. G.

ALPENA

Curtis, G. H.

ANN ARBOR

Adams, O. V.
Alecia, Sister M.
Allen, Lon
Arnold, Minnie L.
Avery, Eula
Battle, Lauretta
Bennett, Ella M.
Benzin, Lina
Bernhardt, Esther
Boyce, Helen E.
Breed, Gertrude T.
Brown, Helen
Brown, Ruth
Brownell, Ada
Butler, L. A.

Carlson, Hilda

Cawley, Anna C.
Chute, H. N.
De Barr, Marjorie
Deters, Carrie
Dicken, Carrie L.
Donahue, Eileen
Dowler, Harriet
Downs, Lulu
Duff, Lela
Eagleson, Stuart
Early, Mary
Eberbach, Lynda
Essery, E. E.
Extrum, Maude
Fischer, Selma
Fohey, Mary
Forsythe, L. L.
Frances, Sister J.
George, Louise
Gibbons, Winifred
Glasier, Lucy
Granville, Robert
Hall, Hazel
Hamilton, Barbara
Hamilton, F. G.
Hedrick, Ethel
Henne, Meta M.
High, J. B.
Highley, A. M.
Hodson, Catherine E.
Honora, Sister
Hooper, Estelle
Hoyle, Edith L.
Hubbard, Kate C.
Jocelyn, L. P.
Kahoe, Nellie M.
Keedle, Hazel
Keen, Sarah E.
Keim, E. G.
Kingsbury, Alberta
Kirchhofer, Marie
Krogh, Bertha M.
Lamb, Zelma Eilene
Lewis, Sara
Litchfield, Verna
Loving, Nellie S.
Lucina, Sister M.
McConnell, Magdalene

McGregor, Mae
McLouth, Olive
McMullen, Maude
Marchke, Emily
Nutt, H. D.
O'Brien, Sarah
Osborn, Lurene
Palmer, Mrs. J. V.
Parry, Edna D.
Pielemeier, John
Plympton, Clara G.
Porter, Alice
Purfield, Agnes H.
Purtell, Catherine
Reinhardt, Flora
Rennie, Florence M.
Reynolds, Jane
Robison, Cora
Russell, Josephine
Scarlett, Mary
Schaible, Ida M.
Schmutz, Margaret
Scoville, Lucile
Seeley, Frances
Sink, Maude F.
Skillen, Mary
Slawson, H. M.
Smith, Helen A.
Staeb, Minnie
Stark, Evelyn
Steele, Anna B.
Stitt, A. C.
Sturgis, Christine
Sturcis, Archie
Taylor, Mary
Thompson, Irene
Thompson, Mary L.
Tichnor, Frances
Tinkham, Lona C.
Van Kleek, Mabel
Vreeland, W.
Walz, Florence
Watts, Amy W.
Weinmann, Louise
Weitbrecht, Emma
Whitney, Blanche
Wilber, Marjorie
Wilson, Miss T. J.
Wines, L. D.

- Withey, Jean.
BAD AXE
 Bishop, J. W.
 Martin, Fern
 Vanden Belt, B. H.
BATTLE CREEK
 Atkinson, H. R.
 Baker, H. W.
 Coburn, W. G.
 Cooper, Lenna F.
 Krell, Carrie
 Marburger, W. G.
 Rieger, Lavanche G.
 Ritchie, Margaret
 Shuart, W. L.
 Simson, Cornelia
 Thoren, Irene
 Watt, W. F.
 Wells, Carlton
 York, W.
BAY CITY
 Bishop, Lola L.
 German, W. I.
 Lord, Henrietta
 Merrill, Frances H.
 Runner, Arthur
 Sharp, E. M.
BELDING
 Hockstad, Lars
 Skinner, S. J.
BIG RAPIDS,
FERRIS INST.
 Ferris, W. N.
BIRMINGHAM
 Toothacker, W. S.
BLISSFIELD
 Storrs, D. E.
BOYNE CITY
 Kunert, Anna
 Metcalf, A. A.
BRIGHTON
 Knapp, D. G.
BURR OAK
 McCullough, C. L.
CADILLAC
 Crandell, C. W.
 Harper, Nina
 Youngs, Blanche
CALUMET
 Doolittle, H. S.
CASNOVIA
 Millard, D. G.
CASSOPOLIS
 Fox, Gerald
CHARLEVOIX
 Rice, C. A.
CHEBOYGAN
 Platts, P. K.
CHELSEA
 McCloskey, J. E.
 Robinson, Mrs. Lilly
 Wegner, Mabel
CHICAGO, ILL.
 Bauma E.
 Johnson, H. M.
 Jones, J. H.
 McAllister, A. J.
 Moody, E. G.
 Shirer, W. G.
 Thorp, Bert
COLDWATER
 Burch, M. C.
 Good, L. O.
 Moore, Gertrude
COOPERSVILLE
 Gibbs, I. M.
COPEMISH
 Ream, Rosa B.
CROSWELL
 Gilbert, F. C.
 Phillips, F. R.
CRYSTAL FALLS
 Hill, W. D.
DAVISON
 Denison, H. S.
 Denison, Mrs. H. S.
DEARBORN
 Adams, R. H.
DETROIT
 Allen, Maude
 Allmendinger, W. H.
 Anderson, H. W.
 Arbury, F. W.
 Archart, I. J.
 Bachman, Eleanor
 Bachman, Sophie
 Baker, H. J.
 Ballard, Bertha
 Banks, Guy
 Benedicta, Sister M.
 Beverley, Clara
 Birkam, George
 Bishop, Mrs. H. A.
 Blair, Maude
 Boyer, C. J.
 Browe, H. J.
 Brown, Mary
 Buckley, Mrs. H. C.
 Burneson, L. W.
 Clay, T. M.
 Cody, Frank
 Conlon, Mary
 Conover, Grace
 Cornville, Fern
 Cousins, Esther J.
 de Marivetz, Mme. S.
 Dixon, W. E.
 Egan, Nora L.
 Ellis, W. A.
 Fleming, Gertrude
 Frederick, O. G.
 Fleming, Nina E.
 Geer, Florence
 Gladden, T. A.
 Goodhew, Lily
 Goodrich, Edna
 Gordon, G. W.
 Grant, Julia
 Greene, Ruth A.
 Gunn, E. J.
 Gunn, T. J.
 Guysi, Alice V.
 Guysi, Jeannette
 Harrington, H. L.
 Hart, Alice V.
 Hayes, E. L.
 Healy, O. B.
 Kepler, F. R.
 Laing, E. R.
 Lightbody, Wm.
 McKinney, Rachel
 McQueen, Laura
 Malone, G. R.
 Mauch, E. D.
 Merrill, John
 Miller, Elsie
 Mochlman, A. B.
 Morse, J. A.
 Packer, P. C.
 Parker, G. E.
 Patrick, Shelby
 Phillips, Rose
 Rasey, Marie
 Redden, John
 Shaw, E. R.
 Snover, Agnes
 Spain, C. L.
 Spain, Mrs. C. L.
 Stendel, Laura
 Stevens, Mrs. F. B.
 Stevens, R. W.
 Sullivan, Irene
 Thomas, J. F.
 Thompson, Gladys L.
 Trybon, J. H.
 Vokes, Edna
 Welch, Ine M.
DET. CASS TECH.
 Allen, E. G.
 Allen, F. P.
 Alliason, A. R.
 Allison, F. C.
 Althouse, A. D.
 Bailey, C. E.
 Ball, C. J.
 Bayne, E. B.
 Bradt, Frederick
 Brown, R. I.
 Brown, S. H.
 Buell, M. H.

Byrn, Clarence
 Carmody, Lucile
 Carpenter, O. F.
 Carr, E. F.
 Chaney, L. K.
 Chostner, G. C.
 Clark, R. P.
 Comfort, B. F.
 Cooke, C. S.
 Crandall, E. R.
 Crell, Raymond
 Curtiss, C. D.
 Davey, C. P.
 Davis, Mary L.
 Dawson, Maud
 Defnet, Frances
 Donnely, J. W.
 Doub, A. V.
 Downer, A. E.
 Dudley, Ethelbert L.
 Egan, Ellen W.
 Emig, R. E.
 Farnsworth, Mary F.
 Finly, A. W.
 Fountain, A. W.
 Fricke, F. H.
 Fuller, Hazel
 Goodrich, H. C.
 Green, Louise L.
 Griswold, Lena
 Haddock, Laura
 Harma, J. C.
 Hazard, Easton
 Hendrickson, J. R.
 Hock, E. M.
 Holmes, Margaret
 Huffman, Lucy M.
 Jenney, H. R.
 Jennings, L. E.
 Keal, H. M.
 Kemmer, F. L.
 Kepler, Violet
 Koehler, I. G.
 Laing, Winifred
 Linton, Mrs. Ellen
 Livingston, Helen
 Lyons, W. I.
 McCarthy, C. J.
 McCullough, Sara
 McGuire, Pearl J.
 McMullan, H. C.
 Monroe, M. P.
 Moore, J. C.
 Mullica, J. M.
 O'Meara, Alleine
 Owens, S. L.
 Paterson, J. D.
 Phelps, Sara
 Phillips, Nellie G.
 Pliska, J. D.

Potts, S. L.
 Richmond, J. B.
 Roberts, Tirzah
 Roby, Anne M.
 Rose, O. K.
 Roys, H. N.
 Ryan, J. P.
 Ryan, W. J.
 Schaff, C. A.
 Schmelz, F. C.
 Scott, H. E.
 Spence, Charles
 Sprinkle, R. W.
 Sutton, B. G.
 Takken, J. E.
 Templeton, W. B.
 Toland, Jessie
 Walker, C. N.
 White, R. A.
 Wilson, Louise R.
 Winton, Grace E.
 Wolber, J. G.
 Wood, E. B.
 Wright, G. G.

DETROIT CENTRAL
 AND JUNIOR COL.

Albrecht, E. G.
 Baldwin, J. W.
 Bammel, Grace
 Bates, F. O.
 Berteault, R.
 Bidwell, Elizabeth
 Bird, E. J.
 Bishop, Helen L.
 Bowerman, C. B.
 Bratt, Charles
 Bratt, George
 Brown, J. S.
 Brown, Jessie M.
 Brown, L. R.
 Burroughs, W. G.
 Campbell, Caroline E.
 Chapman, H. H.
 Chase, Ethel W. B.
 Coats, R. J.
 Collins, J. A.
 Conover, Kate B.
 Copeland, Cornelia A.
 Craig, N. E.
 Cunliffe, R. B.
 Darnell, Albertus
 de Gomar, J. C.
 Dickinson, L. E.
 Fishbaine, S. S.
 Gardner, Emelyn E.
 Garvett, Matilda
 Gee, E. F.
 Gibb, E. J.
 Goldman, Miriam D.
 Hadley, May

Hanke, F. E.
 Harrah, Grace E.
 Hawley, Elizabeth, W.
 Hill, Grace A.
 Hine, Katherine G.
 Hopkins, Florence M.
 Huffman, R. E.
 Hull, Isabella H.
 Hume, Janet A.
 Irland, Helen
 Irwin, F. C.
 Johnson, Vera
 Jones, Grace C.
 Keal, Josephine N.
 Langworthy, F. M.
 Lennon, Mary E.
 Levens, Caroline L.
 Levin, S. M.
 Lowry, Florella R.
 McLain, C. P.
 Mackenzie, Agnes H.
 Mackenzie, David
 Millard, Grace G.
 Mutschel, Matilda
 Nielsen, N. C.
 Power, Mary F.
 Purdie, Edith B.
 Rhines, Minerva B.
 Richardson, Ruby E.
 Rosenthal, Rachel
 Sample, Dorothy
 Sargeant, Charlotte H.
 Sauer, Eleanor
 Schwartz, Elise M.
 Selden, J. P.
 Sickley, C. E.
 Sleeper, Mary
 Smith, Grace
 Stocking, W. R., Jr.
 Tatlock, O.
 Thompson, E. C.
 Thompson, Marg't E.
 Torr, Mary D.
 Watt, Isabella R.
 Wattles, Helen M.

DETROIT EASTERN

Armstrong, A. C.
 Barry, Eleanor
 Barry, Irene
 Browne, E. Mae
 Chamberlin, Mrs. I. T.
 Comfort, Dorothea
 Cook, Frances C.
 Coyle, Harriette
 Dicker, Jane
 Dietz, Ada K.
 Drew, P. E.
 Duffy, Irene A.
 Elliott, Margaret
 Fitzpatrick, Clare

Foster, Christine
 Frazier, J. W.
 Frye, W. J.
 Fuhry, Edw. G.
 Garner, Hale
 Gartner, Katherine M.
 Girardin, Celia
 Harbeck, Ida C.
 Harvey, Caroline C.
 Hatch, Grace
 Henze, Paula
 Klein, Adele L.
 Lambert, Mary B.
 Linn, Flora R.
 McDaniels, Mildred
 Mann, L. B.
 Marsh, Florence A.
 Merriam, A. R.
 Moehman, Nellie D.
 Moeller, Amelia
 Mount, J. B.
 O'Dea, Harriet
 Palmer, Cora E.
 Patterson, S. J.
 Pettee, Edith E.
 Putnam, R. R.
 Sewell, Grace M.
 Smith, E. H.
 Sooy, F. W.
 Stecker, M. G.
 Strubel, R. H.
 Tennant, Jeanette
 Truesdale, Ella K.
 Van Auken, Blanche
 Waterbury, M. G.
 Welch, Myra B.
 Wendell, Laura
 Wood, Mrs. F. A.
 Wood, Mabel L.

DETROIT, JOYCE
 INTERMEDIATE

Ammon, Bertha
 Clemo, Pearl
 Coyne, Estelle
 Davenport, Ella E.
 Farnham, Beatrice
 Fitch, Mary U.
 Hiatt, Florence E.
 Hudson, Helen
 McCusker, Mary
 Newkirk, Mary L.
 Norton, Katherine
 O'Neill, Mary C.
 Reveano, Mina
 Schwartz, Emilie
 Stewart, Margaret
 Stoddard, Marion L.
 Thornton, Myrtle
 Trainor, Esther
 Ward, Katrina C.

Wombough, Helen
 DETROIT, NEINAS
 INTERMEDIATE

Aiton, Edith
 Blew, Helen
 Campbell, Emma
 Cassidy, Ellen
 Conney, Lillian
 Fox, E. J.
 Gabriel, Edith
 Gabriel, Ina
 Hornung, H. V.
 James, Thelma
 Lamb, Eunice
 Lamport, Harold
 Leonard, Fay G.
 McGuinness, Marg'te
 Patrick, Elizabeth
 Shaw, Lola M.
 Whiteside, Adrienne

DET. NORDSTRUM

Benson, E. F.
 Bow, W. E.
 Cox, C. C.
 Ettinger, L. P.
 Hamilton, Amanda J.
 Harwick, C. A.
 Lauer, Marguerite
 McMillian, D. W.
 Mailhot, Elizabeth
 Marsh, Alice Louise
 Murdock, G. W.
 Paterson, Jessie
 Petry, Harriet
 Robinson, Viola
 Seaver, O. G.
 Spicer, C. E.
 Stone, Raymond
 Thomas, Anne F.
 Whiteside, Marrietta
 Wixson, W. W.

DETROIT
 NORTHEASTERN

Babcock, Gertrude
 Barley, Edith M.
 Berg, A. E.
 Bright, Alma A.
 Carson, Ella M.
 Cole, Consello J.
 Cooper, L. G.
 Cox, W. H.
 Doski, Edmund
 Eddy, H. N.
 Elliott, Grace
 Elliott, Lucy
 Foster, Frances A.
 Fyan, Lila
 Gardner, L. B.
 Gordon, Verna H.
 Graham, A. A.

Green, Grace
 Hickie, Beatrice
 Hutchins, Kate M.
 Jackson, Virginia M.
 Kimball, Edith M.
 Kolb, Marguerite
 Ladd, Bessie F.
 Lane, H. A.
 Mullen, Selah W.
 Novak, C. M.
 Pinnock, J. F.
 Plee, N. Octavia
 Porey, Aniela
 Quick, Gulla
 Raycraft, R. E.
 Sanford, James
 Sheehan, Genevieve M.

DET. NORTHERN

Allman, R. V.
 Barlow, Margaret
 Bartlett, A. E.
 Cochran, Jane A.
 Corns, Alice
 Detwyler, Helen
 Gray, Martha
 Hayner, Elizabeth
 Holbrook, Emma M.
 Hutzel, Irma
 Isbell, W. N.
 King, Ruth
 Kinney, Eva M.
 Lanius, Tudor
 Lienau, O. P.
 Longworth, Mary A.
 Lutz, Gretchen
 McGrath, A. L.
 Miller, E. L.
 Miller, Mrs. E. L.
 Miner, Mary L.
 Plumb, L. F.
 Pulford, Bertha C.
 Reardon, Marie
 Russell, Adelaide
 Sayres, C. W.
 Schaible, Clara K.
 Schmidt, M. E.
 Smith, C. E.
 Smith, Florence M.
 Spain, Margaret
 Steere, Margaret
 Sutherland, Olive M.
 Tanis, J. E.
 Todd, S. Edith
 Vernor, Edna L.
 Voorheis, Zadie
 Wegener, Emma D.
 Wilcox, John
 Winton, W. H.
 Yokom, M. C.

DETROIT

NORTHWESTERN

Alley, Sadie M.
 Bedell, E. L.
 Black, Isabelle M.
 Bovill, John, Jr.
 Bovill, R. V.
 Bow, L. C.
 Brown, Frances J.
 Burgess, L. G.
 Burkheiser, Anna
 Carey, Eleanor J.
 Certain, C. C.
 Chamberlain, Kath.
 Cline, A. M.
 Clough, Susanna A.
 Cooper, Elsie E.
 Covey, Blanche
 Da Ratt, Mrs. Gracia
 Deming, Mrs. Delcia
 Duffy, Genevieve K.
 Emmons, Deda L.
 Essery, Florence
 Evans, Monica
 Flanagan, Ruth
 Fraser, H. F.
 Gettemy, Julia
 Green, Frances M.
 Hill, Florence J.
 Holmes, Mary F.
 Howes, Mary F.
 McNally, J. V.
 Merriam, Beatrice
 Metcalf, Jessie
 Nelson, Leila S.
 Netzorg, Muriel H.
 Newcombe, Rachel
 Nielsen, Emma L.
 Norris, Nonna
 Porter, J. E.
 Rauch, Mrs. Edith
 Remington, R. E.
 Rivett, B. J.
 Roehm, Dorothy
 Ryman, Rachel S.
 Sheehan, Sarah E.
 Smith, Esther F.
 Spicer, F. A.
 Stine, Adeline A.
 Tormev, Ella F.
 Vyn, Clarissa
 Walker, Harriet K.
 Watson, Emily T.
 Whiting, E. Frances
 Wilson, Jean W.
 Wood, F. A.
 Wright, Evadne
 Wyman, Alice

DETROIT, NORVELL
INTERMEDIATE

Hulbert, W. O.
 Jaehnig, May S.
 Jerome, M. D.
 Jones, A. F.
 Jones, Laura J.
 Knauss, K. E.
 Knorr, E. A.
 MacDonald, Agnes
 McGuinness, J. P.
 McKnight, Beatrice E.
 Auer, J. E.
 Bennallack, Lois
 Dickerson, Olive E.
 Halstead, Jane
 McGuire, D. S.
 Mauch, Edna F.
 Ross, Margaret T.
 Vokes, Ruth
 Wicks, Pauline

DETROIT

SOUTHEASTERN

Baisinger, B. S.
 Beebe, Faye
 Beyer, Adele H.
 Blakeney, Kittie L.
 Bogenrieder, Gertrude
 Brewer, Mary
 Carr, Henrietta
 Converse, Helen J.
 Corns, J. H.
 Cornwell, A. M.
 Creech, May E.
 Curry, Meroe
 Douglas, Catherine
 Dow, Caroline M.
 Froehlich, A. H.
 Gould, R. D.
 Grant, J. F.
 Harvey, Elizabeth B.
 Hazen, L. M.
 Hendershott, Edna
 Jones, G. W.
 Kehoe, Roberta J.
 MacDonald, Fran. H.
 McFarland, Janet
 McHugh, D. C.
 Martin, Rose F. N.
 Mason, Elizabeth
 Palmerlee, E. Grace
 Phelps, Nancy S.
 Powers, Ruth
 Quirin, Irene M.
 Spafard, Myra B.
 Spencer, Ruth
 Sullivan, Mary G.
 Van Wagoner, Blanche
 Whitney, Edward
 Zalewski, B.

DETROIT, TEACH-
ERS' COLLEGE

Breckner, L. J.
 Camerer, Alice
 Connely, Mildred M.
 Conover, L. Lenore
 Courtis, S. A.
 Gratton, Ida E.
 Jackson, Nellie L.
 Lindquist, Lily
 McFarland, E. W.
 Schumacker, Edna
 Worden, Orpha E.

DETROIT, UNIVER-
SITY SCHOOL

Dane, H. R.
 Fletcher, D. H.

DETROIT WESTERN

Barney, Bertha C.
 Barney, Blanche K.
 Brown, Loretta A.
 Cameron, N. A.
 Chapman, I. E.
 Edmonds, G. P.
 Free, Nellie M.
 Frutig, Marie L.
 Hempsted, Joanna K.
 Hickok, D. W.
 Holmes, F. H.
 Holmes, E. L.
 Kerns, Martha
 Liskow, Julia M.
 Matthews, J. W.
 Meiser, Augusta B.
 Parker, Flora E.
 Pitts, Dora H.
 Roper, Gertrude L.
 Sanborn, Mabel
 Sanford, P. C.
 Seeley, Ruth H.
 Stewart, Lillian B.
 Sturm, Alice K.
 Sundstrom, Elizabeth
 Waples, Marcia P.
 Warner, W. E.
 Weir, W. W.
 Wilkinson, A. O.
 Woodward, Mabel C.
 Yutzey, Homer

DETROIT WILKINS
SCHOOL OF COM-
MERCE

Allen, Ada
 Brock, E. G.
 Crawford, Irene
 Knights, Ethel L.
 Labadie, S. N.
 La Fraugh, Bertha
 Ludke, C. W.
 McDougal, W. A.

- Mitchell, Ivan
 Phinney, Elise
 Rich, L. H.
 Rogers, Lloyd
 Skeels, A. D.
 Stowell, B. D.
 Tilton, N. Edith
 Wiggin, Clara
DEXTER
 Durfee, E. N.
 McGuinness, Margt.
 Mumberger, Edith
DOWAGIAC
 Stewart, L. W.
DUNDEE
 White, G. C.
DURAND
 Goudy, W. S.
EAST JORDAN
 Hoover, D. R.
EAST LANSING
 Buchanan, W. C.
E. LANSING (M.A.C.)
 Bessey, E. A.
 Butler, E. B.
 Frazer, Elizabeth J.
 French, W. H.
 Gettemy, Winifred
 Laycock, W. E.
 Morrison, Edwin
 Thies, W. H.
EATON RAPIDS
 Cook, Edna M.
 Walling, W. L.
EVART
 Kinney, F. H.
FENTON
 Dalrymple, J. A.
 Hadley, Edith
 Lyons, D. F.
 Shattuck, W. S.
 Simmons, W. H.
FLINT
 Abbott, Ruth A.
 Allman, H. F.
 Anderson, Sophie
 Beutler, Helen
 Burrett, Grace
 Burns, J. W.
 French, Lucie
 Jones, Blanche
 Lindell, Selma
 Lott, Esther C.
 McFarland, M.
 McKinney, Nellie
 Maddox, Margaret
 Martz, Eugene
 Merritt, M. L.
 Oberdorfer, Jessie M.
 Parmelee, L. S.
 Pratt, L. A.
 Puffer, W. J.
 Rice, M. J.
 Roberts, Florence
 Russell, W. J.
 Speese, Myrtle B.
 Sprague, Celia
 Suiter, C. L.
 Valentine, C. F.
 Voorhorst, R. G.
 Wellwood, J. E.
 Williams, Bertha A.
FLUSHING
 Storrs, Z. W.
GLADWIN
 Chadwick, G. E.
GOODRICH
 Rood, P. J.
GRAND HAVEN
 Olmstead, Helen E.
GRAND LEDGE
 Bassett, Georgiana
 Derky, Mildred
GRAND RAPIDS
 Ball, Fanny D.
 Becker, M. A.
 Bennett, J. G.
 Bettes, Lucy M.
 Burbank, Elizabeth
 Creswell, Mrs. C. M.
 Crotser, Elizabeth B.
 Dawson, C. D.
 Denise, M. F.
 Diamond, Thomas
 Eich, Louis
 Frazee, G. B. Jr.
 Gilbert, I. B.
 Greeson, W. A.
 Harden, Mary
 Hayes, Nellie M.
 Hinsdale, Mary L.
 Hinsdale, Mildred
 Howell, A. E.
 Hughes, Charlotte C.
 Hulst, Cornelia S.
 Krause, A. W.
 Lindberg, Anna E.
 Schweitzer, Louise
 Shaw, Rachel V.
 Smith, B. E.
 Thomasma, Grace
GRASS LAKE
 Cutner, Mrs. Katherine
GREENVILLE
 Booker, W. R.
GROSSE ILE
 Inglis, Scarth
HADLEY
 Barnum, C. J.
HAMTRAMCK
 Fullerton, Margaret
HART
 Spitter, H. C.
HASTINGS
 Ehle, C. E.
 Howard, L. C.
 Jones, F. S.
HIGHLAND PARK
 Altenburg, G. I.
 Bacher, Mildred
 Beebe, A. H.
 Benjamin, Anna
 Brochery, Jeanne
 Brown, J. L.
 Card, Marjory
 Carpenter, Agnes
 Caswell, J. T.
 Clark, Mrs. M. L.
 Dahl, J. L.
 Daley, H. C.
 De Voe, I. M.
 Duncan, W. G.
 Galatian, Jane
 Grubb, S. P.
 Hardy, Mabel
 Hildner, Euthymia
 Karchner, Lucile
 Kirkendall, George
 Knapp, T. J.
 Locke, J. R.
 Loomis, Albertine
 Lynch, Gladys
 MacDonald, Isabel
 Mansell, Edith
 Margah, Kathrine C.
 Moore, Florence
 Mothersill, M. H.
 Nagle, Gladys
 Nelson, E. H.
 Newton, Lucile
 Orr, Kate J.
 Palmer, R. A.
 Palmer, Sadie J.
 Prakken, Wm.
 Pratt, Louise
 Ross, La Verne
 Russell, H. R.
 Seaver, Meryl
 Smith, R. H.
 Stearns, Virginia
 Streator, Emma B.
 Streator, Helen M.
 Taylor, Mildred C.
 Van Loon, G. E.
 Waite, R. E.
 Wallin, Alice
 Whitney, Beulah G.
 Wilson, Jane
 Wines, Emma

HILLSDALE

Congdon, Nellie
Hyndman, R. W.
Kiebler, E. W.
Mack, W. H.
Mauck, J. W.

HOLLAND

Hoekje, Hanna G.
Nykerk, J. B.
Rodgers, Lida

HOLLY

Bock, R. A.
Davis, T. F.

HOUGHTON

Dillon, Mary
Paton, Florence E.

HOWELL

Fox, Karolena M.
Sharpe, Alma E.

IONIA

Angove, Percy
Hartshorn, Ola
Kantner, J. N.
Wood, W. A.

IRONWOOD

Baillie, Mabel

ITHACA

French, Laura
Grettenberger, L. H.
King, Marjorie

JACKSON

Bliss, F. L.
Britten, Caroline E.
Campbell, Ella M.
Cannon, H. B.
Coy, Jennie M.
Dorr, A. W.
Gilliland, Gwendolen
Howe, Percy
King, Edith A.
Light, E. S.
Marsh, E. O.
Matthews, Fred
Mummary, Mary
Skillen, Elizabeth
Smith, Syra
Stone, Edith M.
Torey, Alice
Wardner, C. A.
Wilcox, Elizabeth L.

KALAMAZOO

Cathcart, Olive
Cooley, Ruth
Day, H. F.
Drake, E. H.
Fisher, G. E.
Grable, Helen
Gregg, Jessie S.
Hagerman, Nell
Horne, W. N.

Howick, Harry

Irle, Mabel
Milham, Gertrude E.
Norcross, S. B.
Parsons, W. W.
Sellers, F. M.
Todd, Clarence N.
Wilcox, C. C.

KALAMAZOO COLL.

Bacon, J. H.
Bailey, Mark
Balch, E. A.
Praeger, W. E.
Roope, P. M.
Williams, C. B.

KALAMAZOO, WEST-

ERN NORMAL

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JOURNAL

OF THE

Michigan Schoolmasters' Club

FIFTY-SEVENTH MEETING

Held in Ann Arbor, March 30-31, 1922

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TABLE OF CONTENTS

	PAGE
Character Training of High School Students..... <i>John W. Laird</i>	7
Intelligence and the High School..... <i>Guy M. Whipple</i>	9
Report of the joint committee on University Entrance Requirements..	20
Freshman Failures in Physics..... <i>W. F. Colby</i>	25
Freshman Failures in Chemistry..... <i>W. G. Smeaton</i>	27
The Fountain of Study Habits in Algebra..... <i>Alice M. Woessner</i>	34
Relation of Manual Arts to Vocational Education.... <i>C. A. Wardner</i>	38
Pottery as a High School Art Project..... <i>Albert C. Armstrong</i>	44
Libraries in Detroit Platoon Schools..... <i>Martha C. Pritchard</i>	47
Survey of Foreign Language Teaching..... <i>A. G. Canfield</i>	49
Report of the Committee on Resolutions.....	52
Program of 1922 Meeting.....	59
List of Members	73
Advertisements	75

Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-SEVENTH MEETING, HELD AT
ANN ARBOR, MARCH 30-31, 1922

EDITED BY THE SECRETARY

CHARACTER TRAINING OF HIGH SCHOOL STUDENTS

PRESIDENT JOHN W. LAIRD, ALBION COLLEGE

Herbert Hoover has recently said that our social and economic systems will not march forward unless accompanied by spiritual advance. We may add that spiritual advance will not be possible without character training. Character training should be stressed during the plastic and formative years of youth. Our high school students are in those years. Therefore the most important work that can be done in the high school is the character training of its students.

I do not share the opinion of those who believe that the average high school student is less moral than his predecessors. He may have a more open way of expressing himself, but fundamentally he is just as responsive to the right kind of appeal as his predecessors ever were.

And yet the imminent problem of character training faces the high school authorities today. Our high school student is by no means a saint, and needs to have his physical, intellectual and moral energies so trained and directed that they will make for strong manhood. The testimony of a considerable number of high school teachers, principals and superintendents is to the effect that unless in the high school days students are proper-

ly trained ethically and morally, the sharpening of their intellects will not be sufficient to enable them to grow into strong manhood and womanhood.

Moreover there is an element of necessity in the problem of character training of high school students. There is a physiological necessity. Nature has provided the best time for character training, and the high school student is the right age for such training.

There is also a psychological necessity. All good teachers know that where character is left undeveloped the student cannot do his best intellectual work. There is an academic necessity. The colleges are requiring recommendations for character before admitting high school graduates. The great demand for higher education and the lack of equipment of most colleges and universities makes it quite necessary that a selective process obtain in admitting high school students to college. Moreover, it is a question whether a high school student untrained morally can successfully go through college. Furthermore there is a patriotic necessity. The need of the hour is leaders who not only think truly and speak truly, but who *live* truly. This is being realized more than ever, and high school teachers, principals and superintendents are quite cognizant of this fact.

The chief factors in the solution of the problem are first of all the atmosphere of the school. The high schools should very largely endeavor to create the atmosphere in which moral character can be developed. A second factor is the curriculum of the school. I have a conviction that the liberal elective system in the high school does not make for the right kind of discipline, and encourages the student to follow the line of least resistance. Without hard work and just discipline character training would be quite impossible. A third factor is the teacher. The teacher cannot be cynical in his attitude toward character. He should believe in the separation of Church and state, but he must also see very clearly that there can be no separation of religion and education if he would train the character of his student. This does not mean that he will be a sectarian or bigoted religionist. It does mean, however, that he will have that kind of faith in eternal verities of life that presuppose a faith in God. Finally the student himself is an important factor. By personal interview, if necessary, he must be made to see that there can be no character development for him unless he gives the right kind of cooperation and attention. He is not clay in the hands of the potter, nor stone in the hands of the sculptor, nor paint in the hands of the painter, but vitally sentient, a personality whose will must be brought into cooperation with the will of his teachers.

INTELLIGENCE AND THE HIGH SCHOOL

GUY M. WHIPPLE, PROFESSOR OF EXPERIMENTAL EDUCATION, SCHOOL OF
EDUCATION, UNIVERSITY OF MICHIGAN.

At the present time relatively less intelligence testing is being done in the high schools than in the grade schools. For one thing the problem of admission and classification is felt to be somewhat less serious in the high school, and for another thing, Binet tests, the advent of which was largely responsible for introduction of work in the grade schools; are not particularly effective above the age of twelve years and take considerable time—40 to 120 minutes per pupil—for their administration.

The advent of group intelligence testing, however, has altered the situation, so that within the past few years there has been made considerable use of such tests as the Army Alpha, the Otis Advanced Examination, and more recently, of the Terman Group Test, which has been especially devised for students of high-school ages.

The Magnitude of the Problem

Since 1890 there has been a rapid increase both in the absolute and in the relative number of elementary-school pupils who enter the high school. Thus, in 1890, there were only 5 per 1,000 of the general population in the high school, whereas in 1915, 14.4 per 1,000 of the general population were in the high school. In other words, the proportion of the general population in the high school increased during these years nearly three times as fast as the general population increased. Recent figures show that there are about 14,000 high schools in which 80,000 teachers care for one and one-half million pupils and for which about \$75,000,000 is spent each year.

The Chief Problems

Little or no work appears to have been done on the problem of controlling admission to the high school analogous to the work now being done on controlling admission to the first grade by means of intelligence tests.

Some emphasis is being placed, however, on the use of intelligence tests for controlling the admission of high-school graduates to the college. We may cite in this connection the stand taken by the Association of College Registrars which about a year ago voted unanimously to provide space on the admission blanks for recording the results of intelligence tests

and which expressed the opinion that the giving of these tests should be encouraged by the members of the Association. Partly on this account in the State of Michigan several high schools are taking steps to furnish these scores for entrance to this University.

The chief stress has, however, been laid on the possible use of intelligence tests within the high school for guiding the students in the election of studies or, what is closely related to this, for guiding students in their selection of a vocation.

The need for help in these directions is more real in the high school of today than it was in the high school of a decade or more ago. Time was when those who entered the high school mainly intended to pursue further work in the college or, at least, aimed to fit themselves for a professional career, but at present we must face the fact that only one in ten of those who enter the high school ever reaches the college, and we must consider seriously what obligations the high school has to the 90 percent of entrants who are not college-bound. Moreover, it has been shown repeatedly that the task of deciding upon the career of the student has come to be increasingly thrown upon the shoulders of the school authorities. "The high school," to quote a recent writer, *"therefore becomes the residuary legatee of the church and the home in the field of educational and vocational guidance."

My object is to raise a series of questions concerning the part that intelligence testing plays or may play in the high school and to see what answers can be found to these questions.

1. *Is it feasible to give intelligence tests in the high school and if so, what ones are to be recommended?*

In a recent publication Professor W. S. Miller, † of Minnesota, a high-school principal of experience, points out that to be useful in the high school an intelligence test must meet these criteria:

(a) It must differentiate; that is, it must separate students of different degrees of ability and yet yield practically no zero scores and no perfect scores.

(b) It must have a high degree of reliability; that is, two applications of the same or equivalent forms ought to yield correlations of at least .60 and preferably .80 or more.

(c) It must correlate reasonably well, say at least .50, with school achievement—assuming that the judgment of teachers and their class room marks are reasonably reliable themselves.

(d) The directions for giving the test must be simple and the technique of administration not too complex.

*W. M. Proctor. *Psychological Tests and Guidance of High School Pupils. Bureau (?) of Educational Research Monograph No. 1*, June 1921.

†W. S. Miller. "The Administrative use of Intelligence Tests in the High School." *21st Yearbook of the National Society for the Study of Education. Part II Chapter 7.*

- (e) The directions must be such that the student has a perfectly clear notion of the task before him.
- (f) The test must permit of rapid objective scoring.
- (g) The test must be limited in its time demand to a class period of forty minutes.
- (h) The cost must not be prohibitive.

Proctor and others have shown that the Stanford Binet Test meets many of these criteria; its reliability is high; the results correlate well with school criteria of achievement, but its technique can hardly be called simple and its cost is well-nigh prohibitive save for experimental purpose or for checking doubtful cases. Moreover, it does fail to measure the intelligence of some unusually capable pupils.

The trend of practice is, accordingly, against the use of the individual method, and in favor of the group intelligence test. Of these tests, there is little doubt that the Army Alpha has seen most extensive use, and for reasons that are so well known that they need not be repeated here. On the other hand, the Army Alpha test was not designed for the high school and in many respects it suffers from comparison with other tests, like the Otis Advanced Examination, the Miller tests, and particularly Terman's Group Examination. It is my opinion that, as soon as comprehensive norms for these three tests are generally disseminated, they will gradually replace the Army Alpha in favor among high-school investigators.

The feasibility of using these group tests will depend in part upon the administrative situation. The problem of scoring and tabulating sometimes becomes serious. Personally, I agree with Miller that, if the school system has no official department of measurements, the group testing in the high school might be delegated to one specially trained person, but that the scoring ought to be assigned to all members of the staff. Up to 150 or more students can be tested in one group; then, as Miller says: "by a systematic procedure, the staff of a high school of 400 pupils could score any group test for the entire school in from two to five hours." Final tabulation, the computation of percentiles, and correlations may be preferably the task of the examiner or of one or two members of the staff who are best qualified for this work.

In short, then, the high-school principal need not be deterred from using intelligence tests on account of fancied insurmountable difficulties of administration.

2. *Do the results correlate with school performance?*

The results of Army Alpha tests may be expected to show a correlation with high-school marks in the neighborhood of .40. I have not been able to locate correlations figured for the Terman Group Test, but have reason to believe that they are higher than this. Miller reports .52 with his test at Minnesota.

CORRELATION BETWEEN ANALOGIES TEST AND PRINCIPAL'S ESTIMATE OF GENERAL INTELLIGENCE.

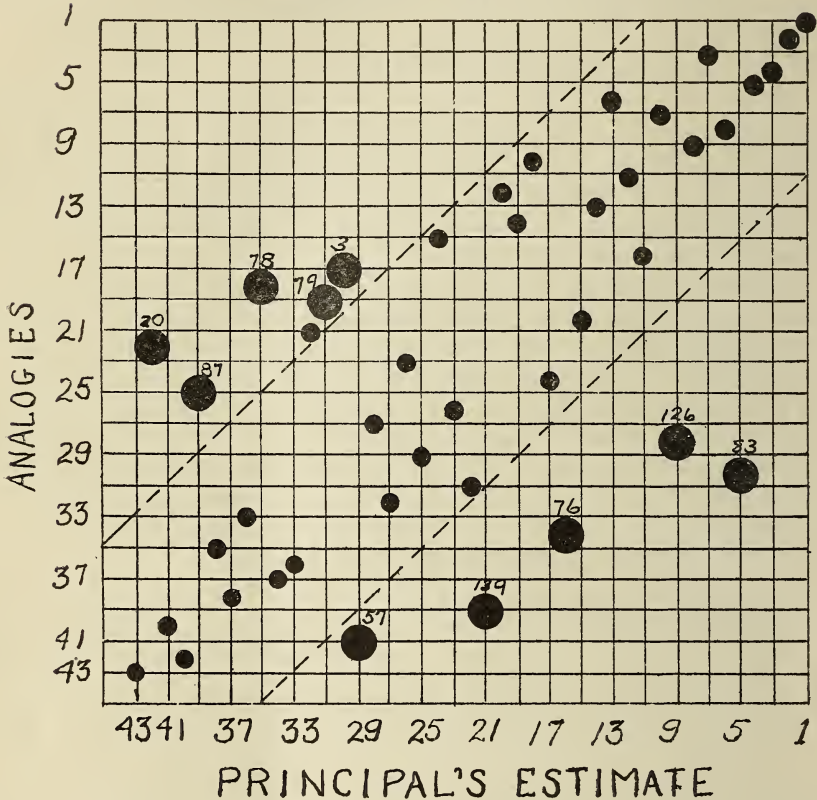


Fig. 1

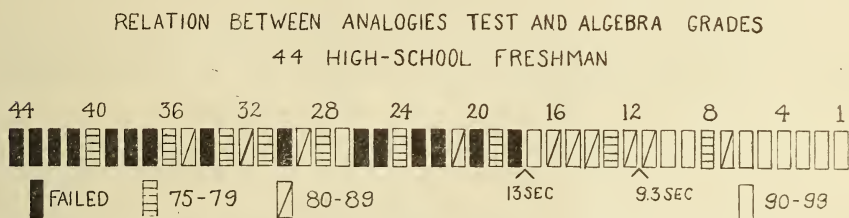
The chart before you (Fig. 1) shows a correlation I obtained with a single mental test (analogies) in the Urbana High school. Statistically, the correlation here is .74. It should be said that this test was administered by the individual method.

3. *Do individual tests correlate particularly with certain high-school subjects?*

It has been a favorite amusement for amateurs in testing to analyze particular tests in group examinations like the Army Alpha in an attempt to determine just what special mental traits these tests measure and then to examine their predictive value with reference to certain special subjects. In principle, there is no reason why this analysis might not be attempted, but in practice it turns out to be somewhat difficult and probably as yet not

productive of especially significant results. For example, the analogies test used in the army test demands the quick perception of certain linguistic relations—a knowledge of word meaning and ability to use words intelligently in relation to one another. Scores made by 171 pupils in the Palo Alto High School showed a correlation with their marks in English in the freshman year of 0.48, so that it is safe to say that a good score in the mixed relations, or analogies, test is a fairly good index of ability in first year high-school English.

On the other hand, the same test—tho applied individually—used in the Urbana High School, yielded for me a correlation of .74 with grades in freshman algebra (Fig. 2) so that apparently the verbal relations test contains ingredients that are just as much, if not more, related to success in algebra as to success in English.



As a matter of fact, this result is not strange, for we have plenty of evidence that success in any one subject tends to be accompanied by success in other subjects; in other words, that general intelligence is a more potent element than is some particular intelligence or aptitude, like linguistic aptitude or mechanical aptitude or mathematical aptitude, in the determination of the educational progress of most students.

This is not to say that the same elements are concerned in all school subjects or that specific tests may not very well be devised that shall bring to light these special aptitudes. No doubt there is such a thing as mechanical endowment, linguistic endowment, mathematical endowment, and musical endowment, only that these endowments appear to be superimposed upon general intelligence and that as a rule, general intelligence is a more important ingredient than these specialized endowments. "The mastery of any high-school subject, says Proctor, "involves such a complex of mental traits that any test which proves to be a good test of ability to succeed in one subject is quite apt to be a good test of general mental ability."

4. *Do intelligence tests show any relation to the retention or elimination of pupils in the high school?*

Someone who overheard the statement made that the French people were exceedingly original replied, "No, as a matter of fact, they are the world's greatest borrowers. Thus, the celebrated motto which was said to have been placed upon the walls of Verdun, '*Ici ils ne passeront pas*'"

was really borrowed from the walls of the American high school." Whether this be so or not, it is generally recognized that the most common single cause for withdrawal from the high school is failure to pass in class work. It would seem probable, therefore, *a priori*, that intelligence tests, which are known to have worth in predicting failure, would also have worth in predicting elimination.

That there is a decided elimination at the entrance to the high school throughout its four years, and at entrance to the college and university is a commonplace. Further, there is plenty of evidence to show that on the whole it is the less able pupils who are eliminated; in other words, the *average* ability of seniors is considerably higher than would be the average ability of the same class when it entered the high school, after all due allowance is made for mental development due to maturity and to mental development due to the four years of work and instruction.

The median scores of freshmen in the Army Alpha test range in different high schools approximately from 85 to 105; the median scores for seniors range approximately from 107 to 135 in the same schools; that is, seniors score about 25 to 30 points higher than freshmen.

More convincing evidence concerning the relation of test scores to retention and elimination can be secured, however, from direct study of the records of the two groups. Thus, in 107 pupils who were tested individually by the Stanford-Binet in the Palo Alto High School, the median I. Q. of those who dropped out—or as the euphemistic phrase has it, "left to go to work"—was 94, and of those who remained was 110. Or, putting it the other way around, at the end of two and one-half years "none of those testing below 80 I. Q. and only 28 percent of those testing 80-89 I. Q. remain in the high school, whereas, of those whose I. Q. was 110 or over, 100 percent remain in the high school. Similarly, of the students who go on to higher educational institutions, the median I. Q. is 116 to 118.

Summarizing these facts, Proctor, who made the study just cited, says: "The high-school principal who makes such a preliminary survey of his pupils can be reasonably sure that 50 percent of those who test below normal will be eliminated within the first two years: that 25 percent additional of the subnormal group will have been transferred to other schools because of failure in their work; and that a negligible number will ever graduate. With this information at hand he can plan their curriculums more intelligently. Discovering at the outset that from 15 to 30 percent of his pupils are incapable of succeeding in the conventional high-school subjects, he will undertake to make new adjustments to meet the situation. There will be fewer failures, more pupils will remain to take work that is adapted to their needs and capacities; and the high school will be less open to the charge of catering only to the intellectual aristocracy among its pupils."

5. *Can intelligence tests improve the classification of pupils?*

The prediction of elimination is by no means the only useful outcome from the application of intelligence tests in the high school.

Schoolmen are perfectly well convinced now that the use of intelligence test scores will produce in the grade schools a re-classification that facilitates the work of instruction by permitting more homogenous grouping of pupils. Too little attention has been paid to the possibilities of such re-classification in the secondary school. Miller, in his excellent discussion of this matter,* points out that even a division of a class into two sections—if the school be too small to make further sectioning possible—produces beneficial results, but he also points out emphatically that the mere sectioning of the pupils in and of itself, is only a preliminary step. That does not guarantee improvement; it only furnishes the possibility of improvement. The advantages that *should* result from sectioning are:

(a) It makes possible an adaptation of the technique of instruction to the needs of the group.

(b) It makes possible—but does not insure—an adaption of materials of instruction to the needs of the group.

(c) It may make competition operative as an incentive ("Competition between the fat man and the track man does not operate as an incentive" in a footnote).

There is another outcome of classification by test scores that deserves a moment's attention.

Suppose that all the pupils are sorted on a scatter diagram in such a way that the intelligence test scores are plotted against the school marks, and the diagram is simply divided by running horizontal and vertical lines where the median scores and the median school marks lie. The results will be a square with four quadrants, as in Fig. 3.

Intelligence Score	Upper half in intelligence and lower half in school marks (2)	Upper half both in intelligence and school marks (1)
	Lower half both in intelligence and school marks (3)	Lower half in intelligence and upper half in school marks (4)

Fig. 3

A classification of this sort was drawn up for a group of 55 pupils in the University High School at Minneapolis. Inspection of the characteristics of the pupils thus classified showed the following interesting facts:

(a) Quadrants 1 and 3 are what would be expected.

(b) All pupils in Quadrant 4 are conscientious, industrious, dependable 'lesson-getters,' who work under parental supervision. They conform: "without exception they are students with pleasing personalities. Teachers naturally dislike to have them receive low marks. The mental tests don't register these excellent qualities, but the school marks do register them." It is interesting to note that of the 8 pupils in this quadrant, 6 were girls.

(c) Pupils in Quadrant 2 are characterized by a different set of adjectives. They are not regular in their work habits. They work by 'spurts'

*Op.cit.

or not at all. They take little pride in their school work, and marks do not appeal to them. They are non-conformists in classroom requirements and are therefore not good 'lesson-getters.' It is of interest to note that of the seven pupils located in this quadrant in the Minnesota school, 6 were boys.

As Miller says: "The interesting and important question is whether the pupils in this second quadrant can be made to move over into the first quadrant where they belong. If this quarter of the chart is densely populated, "your school is not paying dividends on the gray matter at its disposal."

6. *Can intelligence tests be used to advantage in the high school to guide students in their election of courses?*

From what has already been said, it would appear that an affirmative answer is to be expected to this question, as a simple matter of logical argument. Fortunately, we are able to reinforce this argument by actual results produced under experimental conditions. Thus, in the same Palo Alto school previously mentioned, the mid-year VIIIA class of 31 pupils was given a Binet examination just prior to its entrance to the high school. Each student was also interrogated as to educational plans, vocational ambition, and the subjects he desired to take in the freshman year. These data, together with the scores of Army Alpha tests, reduced to equivalent I. Q.'s, were entered upon cards, and advice was given each student in accordance with them. Thus, Carrie Brown, with I. Q.'s 89 and 90 in the two mental tests, wanted to take English, algebra, Latin, typing, and drawing, and wanted to become a chemist. The adviser's memorandum is: "Should be discouraged from taking Latin; algebra doubtful, but if she insists, in view of her desire to go to college, assign to the second division." Carrie Brown was induced to omit the Latin. She insisted on taking algebra and failed in it.

Generalizing the results of this experiment, it appears that only 18.2 percent of this guided group failed in one subject during their first year in the high school, and only one of them failed in two subjects. On the other hand, a 'control' group of similar composition that was given no guidance on the basis of intelligence tests showed 30.8 percent failure in one subject and 10.3 percent failure in two or more subjects in the same period. That is, there were practically twice as many failures in the unguided group. This object lesson strikes me as sufficient to demonstrate the very definite value that can be secured in educational guidance in the high school from the use of intelligence tests.

7. *Can intelligence tests be used to advantage in the high school to guide students in their selection of vocations?*

Here we enter upon a field that is confessedly in the experimental stage. The success of the various trade tests that were developed during the Great War has led many persons to assume that the way was now opened for precise vocational guidance, but a little reflection shows that the trade tests

are not devices for prediction, but for verification. They tell whether a man who has been employed in a given trade can be classed as a novice, an apprentice, a journeyman, or an expert; they do not tell whether a man who has never been employed in that trade will or will not succeed after trial.

Likewise, the relation of the intelligence scores in the Army tests to the occupations of those tested, while of extraordinary interest in many respects, affords us little more than a rough sieve for the sorting of men and that largely in a negative manner. That is, we find that a person who scores average or below average in intelligence is rarely found among the ranks of those occupying professional and clerical positions, such as engineers, dentists, chaplains, accountants, telegraphers, and the like. We may then, by our testing designate certain types of occupations that the examinee will do well to avoid. Again, while we know that the men whose scores range in general between 23 and 70 in the Army Alpha test are largely found in the ranks of semi-skilled labor, yet there is nothing in the test score to indicate whether such a person would succeed best as a cobbler, a teamster, a barber, a farm worker, or a horse-shoer.

Furthermore, we are far from knowing at present what are the essential qualifications for the various occupations. Doubtless the future will see a rapid and useful extension of job analyses.

Actual tabulation of the vocational ambitions of 930 high-school students in 8 different high schools shows that 50 percent aim for one of the professions, 30 percent for a business or clerical career, 5 percent for an agricultural life, 4 percent for mechanical and industrial activities, leaving 11 percent unclassified (mostly, however, for a professional or semi-professional type of work). In other words, over 91 percent of these 930 students were aiming for some 31 different occupations, all of which are of the 'white collar' type. Even granting the selected nature of the high-school population, it is a question whether so many of its number are destined to succeed in a direction that, as the census reports show, offers a relatively small proportion of the vocational opportunities in the United States. If this be granted, then the need for vocational guidance in the high school seems to follow as a matter of course.

Referring to the 930 students just mentioned and taking the professionally ambitious group, we may note that the army results show that the middle 50 percent of men engaged in the professions have scores lying between 98 and 184 in the Army Alpha intelligence test. It will be fair, I think, to assume that students whose scores fall below the first quartile, that is, scores that are exceeded by 75 percent of the men engaged in professional callings, have only a doubtful chance to succeed in this type of vocation. Of the 470 students who were ambitious to enter a profession, 50 had intelligence scores less than 90 (8 points are allowed for lee-way). Or again, 24 percent of those who wanted to be draftsmen, 21 percent of those who wanted to be bookkeepers, 22 percent of those who wanted to

be stenographers, 18 percent of those who wanted to be dentists, 24 percent of prospective engineers, 15 percent of prospective lawyers, 14 percent of prospective doctors and 34 percent of the prospective *teachers*, had scores that on the basis just outlined indicated doubt of success. Here, then, is an obvious and fairly simple opportunity for using intelligence tests for vocational guidance in the high school. Naturally, I don't mean that intelligence tests settle the whole issue; I mean that they raise a justifiable doubt as to the wisdom of attempting these callings. To the evidence of the intelligence tests must be added the qualifications of health, temperament, training, the opportunities for advancement, the demand for workers, and so on. Naturally, I do not mean, either, that every boy and girl of superior intelligence should be urged to aim for a professional career; there is room for superior intelligence in many callings, and as one writer says: "It would be well for the country if young people of superior ability were encouraged to follow agricultural, mechanical, and industrial pursuits, in order that they might become leaders therein. The professions are over-crowded, but there is always room for young people with ideas and energy in the food-producing and industrially creative occupations."

8. *Can intelligence tests assist the high school in determining qualifications for the admission of its graduates to the college?*

My answers to the two preceding questions have already foreshadowed the answer to this one. For if intelligence tests are useful in controlling the educational careers and the vocational ambitions of the high-school students while yet in the high school, they must be useful in controlling admission to college. I have already referred to the action of the registrars of American colleges in recommending the use of intelligence tests by the high schools. It would take us too far afield to discuss this matter in detail here. Let me close then, by saying (a) that the ability to obtain a high score in a properly adjusted and properly administered intelligence test is presumptive indication of ability to succeed in college; (b) that it is possible to locate certain 'critical scores' below which success in college can be obtained only by unusual industry or unusual time; (c) that it is possible to locate certain other critical scores below which success in college is decidedly problematic; (d) that we have already clear evidence that of the two items — intelligence scores or high-school marks — the former gives the more reliable prediction for college success; and (e) that a proper combination of high-school records and intelligence scores gives more reliable prediction for college success than either item alone.

Summary

These are the questions I have raised and the answers I have made:

1. *Is it feasible to give intelligence tests in the high school; and if so, what ones are to be recommended?*

Yes, Binet tests find some place, but the more useful tests are group tests like the Army Alpha, the Terman Group Test, the Otis Advanced Examination, and the Miller High-School Tests.

2. *Do the results correlate with school performance?*

Yes, properly given tests correlate with carefully given marks into a reasonably satisfactory degree, say .40 to .70.

3. *Do individual tests correlate particularly with certain high-school subjects?*

To some extent, but general intelligence is a more important factor than specific aspects of intelligence, at least as far as our present methods of testing have carried us.

4. *Do intelligence tests show any relation to the retention or elimination of pupils in the high school?*

Yes, they do, so much so that their results can guide the principal of the school in adjusting his courses to his students.

5. *Can intelligence tests improve the classification of students in the high school?*

Yes, undoubtedly, but the classification must be followed up by appropriate administrative and pedagogical measures if its benefit is to be realized.

6. *Can intelligence tests be used to advantage in guiding students in their elections of courses in the high school?*

Yes, they can. Actual trial shows that this guidance reduces the number of failures by half.

7. *Can intelligence tests be used to advantage to guide high-school students in their selection of vocations?*

Yes, they can; though we cannot be as precise in this guidance as some persons would like to believe.

8. *Can intelligence tests assist the high-school authorities in recommending its graduates to the college?*

Yes, they can. This use of the tests, though hardly begun, bids fair to assume an important role in the future.

REPORT OF THE JOINT COMMITTEE ON UNIVERSITY ENTRANCE REQUIREMENTS

PRESENTED AT THE 57TH MEETING OF THE MICHIGAN SCHOOLMASTERS' CLUB
MARCH 31, 1922

In January, 1920, a committee of the Engineering Faculty of the University submitted to that faculty as a whole a report giving a number of suggestions and recommendations for the improvement of the work done by engineering students. Among these were several concerning entrance requirements.

This report reopened the subject of entrance requirements to investigation. Accordingly a joint conference between the Schoolmasters' Club and the Engineering Faculty was arranged for April 1, 1920, at which several papers dealing with these questions were given and considerable discussion on the part of secondary school men and members of the Engineering Faculty took place. At this meeting a committee of seven, consisting of three members from the Engineering College and four representatives of the larger and smaller high schools was authorized. This committee was directed to prepare a report on Engineering College entrance requirements to be submitted in April, 1921, at a similar meeting.

After this committee had gotten started on this work, it discovered that a committee of the Literary College was at work on a similar problem, so by common consent, the two committees joined forces and attacked the problem of university entrance requirements in general rather than those of the Engineering College or the Literary College separately.

In order to give a greater opportunity for publicity, and deliberation, the problems of this joint committee have been thrown open for discussion at meetings of secondary school men on four different occasions, at State Principals' meetings, the Schoolmasters' Club meeting here one year ago, and during the summer session here last summer.

At these various meetings and at more recent meetings of the committee itself, the following points were brought out:

(1) That in 1920, 26 out of 117 accredited high schools in Michigan were put on the "warned" list because of the failure to live up to all of the North Central Association standards, and that in the same years an abnormally high percentage of students in the University were "warned" or put on probation;

(2) That the unsatisfactory preparation on the part of many of those who entered the University in 1919 and 1920 was due in large part to lower standards during the war, closing of schools because of epidemics and fuel shortage, insufficiency of teachers' wages, and also to a lack of uniformity of content of certain high school courses, particularly in chemistry, which was one of the subjects complained of by the Engineering College;

(3) That careful investigation showed that a surprisingly large number of students who entered the University during 1919-20 were deficient in mathematics, and that before they could go on with any mathematics in the University it was necessary as an emergency measure to establish coaching classes in algebra and geometry for many of these students. At the annual meeting of High School Principals held in Lansing in December, 1920, that organization went on record in favor of the following resolution:

"That high school students who expect to take up engineering courses be required to take an examination in algebra at the middle of their senior year, and that those who were found by this test to be deficient should be required to take a fourth semester of algebra."

(4) That there is a wide variation in the number of elementary and advanced high school units allowed by different high schools towards graduation. Some have an elective system which will permit pupils in their third and fourth years to carry a number of first and second year electives, while others require their high school juniors and seniors to carry practically all junior and senior work;

(5) That many weak students have gotten into the University because the statements in the university catalog regarding scholastic standards required for admission were capable of such interpretation that there was always the opportunity for a candidate to make a personal issue of the matter with the principal who was inclined to refuse recommendation, and that many principals therefore were hesitant about withholding recommendations from any who had the necessary 15 units irrespective of poor scholarship. It was shown also that some principals paid little attention to the grade of scholarship of those whom they recommended to the University, believing that anyone who so desired was entitled to the privilege of a year's tryout at that institution;

(6) That there was a need of a closer checking up by secondary school authorities of the work which their graduates are doing in the University, and that some departments of the University had not been in the habit of sending information back to the schools from which their students came as much as could be desired.

From these and from a large number of other equally interesting facts brought out at these meetings, the following statements were formulated and sent out by Registrar Hall in February, 1921:

"The responsibility for failure on the part of freshmen in the University rests partly with the high school authorities and partly with those of the University. The high school authorities can aid greatly in the reduction of the number of failures by giving attention to the following recommendations, which are made by a joint committee of the faculties of the colleges of the University and of the high school principals:

"(a) That all high school students, especially juniors and seniors be given adequate advice relative to entrance requirements.

"(b) That every high school student be required to take a final examination each semester in every study carried, in order that the student may be adequately prepared to take the difficult examinations in college work.

"(c) That the junior and senior years be devoted mainly to advanced courses especially designed for those grades.

"(d) That stricter discrimination be made in the matter of recommending students to the end that ideals expressed in the foregoing paragraphs be satisfied. Recommendations should cover unqualifiedly the student's entire preparation.

"(e) That the grade for recommendation to the University be distinctly higher than that required for graduation, (e. g. if the passing mark be 75, a grade of 85 in most cases should be required for recommendation.

"(f) That mental tests be given to seniors in order to supplement other information regarding scholarship, ability, and aptitude.

"(g) That the principal advise prospective freshmen concerning the first-year elections in the University. (A special bulletin on this subject is now in preparation.) In this most important process of transferring well qualified students from one division of the school system to the next, the University hereby expresses its appreciation of the hearty cooperation of the high schools in the past, and looks confidently for still closer and more effective cooperation in the future."

The present situation appears to show considerable improvement over the earlier conditions. As a result of the influence of the Diploma School Committee on the standard of schools, the greater care exercised by principals in officially recommending their graduates who desire to enter this University, and the increased strictness of the admission officers, as well as the fact that the University is now getting students whose high school prepara-

tion has largely been made since the war, there seems to be a marked improvement in the scholarship of the present freshman class. This is evidenced by the fact that on the basis of the mid-semester reports in December of this year, only 20 students were placed on probation and 80 on the "warned" list in the College of Literature, Science, and the Arts. Last year 100 were placed on probation and 150 on the "warned" list. The semester reports showed an even greater improvement.

Certain recommendations have been prepared as the result of the work of this joint committee as follows:

(1) The providing each year, in connection with the meeting of the Michigan Schoolmasters' Club, of a conference of the University and High School representatives for the purpose of considering questions involved in the cooperation of the high schools and the University.

(2) The placing of restriction on the privilege of recommending students in the case of high schools whose entering freshmen fall below a fair standard of first year work.

(3) That the 15 or more units required for admission on certificate must include 12 or more units from Group 1, and these units from Group 1 must contain as a minimum 5 units of advanced studies regularly scheduled for the third and fourth years of the high school curriculum. Inclusion of 6 or more such units is urgently recommended. Students who present for admission less than 5 advanced units, but otherwise satisfy the entrance requirements, will be required to continue through their freshman year a third major high school subject.

(4) For the guidance of the administrative officers of the University, the following shall be considered as advanced high school units:

Third and Fourth Year English.

Third and Fourth Years of a Foreign Language.

Zoology, Botany, or History specifically designed for and limited to the third and fourth years of high school.

Algebra and Geometry beyond one unit of each,

Trigonometry,

Physics,

Chemistry.

Two units of a second foreign language taken in the third and fourth year of high school may be counted as advanced units provided they accompany the third and fourth years of the first foreign language, or provided that the work is of a distinctly more advanced character than that done in the first two years of high school.

(5) A major study is a subject from Group 1 pursued for two or more years, or throughout the senior year.

(6) That the half unit of economics be transferred from Group 2 to Group 1. This subject is now well taught as a cultural rather than a vocational subject.

These recommendations have been communicated to the various faculties of the University by the University members of this committee. The College of Literature, Science, and the Arts, and the Colleges of Engineering and Architecture, and of Pharmacy have taken action on those portions of these recommendations which concern them, and details of the changes will be found in the Announcements of the various colleges for the school year 1922-1923. Many of them will be found in the University Catalog for 1921-1922 and in the literature concerning admissions issued by the Registrar of the University.

Your committee believes that further general study of entrance requirements may well await the results of experience with the present modifications and therefore recommends that it be discharged. It believes, however, that a continued contact between the Schoolmasters' Club and the University is desirable, and therefore recommends that a new committee be created to be known as the Committee on Adjustment of Credits.

Respectfully submitted,

H. S. DOOLITTLE, Chairman.

FRESHMAN FAILURES IN PHYSICS

PROFESSOR W. F. COLBY, UNIVERSITY OF MICHIGAN

The second meeting of the committee called by the Dean to consider the causes of freshman failures was devoted to reports from the various members on the material which they had been able to accumulate in their individual departments. All subjects open to freshmen were represented on the committee and a special effort had been made by these representatives to consult both with students and colleagues. I feel sure that this section of the Schoolmasters' Club will be mainly interested in those features of the meeting which are particularly related to our problems in physics and chemistry.

A very prevalent complaint from all departments was that the beginning student was too often incapable of adequate written or spoken expression. The first impulse of the committee was to lay the blame for this on the preparatory English courses. As the discussion proceeded, however, more points came to light which convinced everyone that other things were involved beside an insufficient knowledge of grammar and syntax. All members agreed that a difficulty lay unmistakably in habitual looseness and vagueness of thought. It seems to me that we in physics and chemistry might scrutinize this situation very carefully. We must not be content with deploring this state of affairs. We must be aware of the contribution which our subjects are capable of making in this direction.

In college physics the young student is very fond of blaming his failures to mathematics. He asserts that he is unequipped or that although he has been generally successful in other subjects, mathematics has always been hard for him. Now the actual formal mathematical requirement for Physics in the University is very slight and I am rather inclined to translate the excuses of the student somewhat as follows: He is overtrained in description and repetition and undertrained in analysis and correlation. He has had courses open to him in preparatory school which have presented masses of information not difficult to grasp or retain and he has learned to value its acquisition far too highly. Preparatory courses must probably contain much of this element. I am ready to believe that preparatory physics is forced into this by many influences of environment (e. g. radio). I only lament that the student is not taught that one sound deduction is worth more to his development than a volume of loose description, that to observe

is not to understand, that he goes to school to strengthen his mental powers, not to acquire superficial information which he could as easily have read in the Sunday supplement.

Mathematics has a great advantage over some other subjects in this regard. It is an old and highly organized subject. It leads directly and orderly from one concept to another slightly harder and builds a unified whole. It requires and furnishes a precise vocabulary and a lucid manner of expression. Its teachers are for the most part very adequately trained. Physics is not so well organized nor do we want to force it in this direction in its present phase of rapid growth. But we cannot teach it profitably to one who does not even know the value of precision. Its greatest charm lies in its inter-relations and in the tremendous sweep of its fundamentals. As a discipline it has a unique and powerful contribution. Any other subject will be grateful if we can equip its students with a trained and trustworthy imagination. But one cannot deny that physics is a difficult subject and it should not be the earliest rational discipline. It should not have to complicate its first difficulties by encountering students who complacently repeat without inquiry. We must persuade all preparatory courses to aid us toward a more genuine and creative training and we must rise to all that such a preparation will require of us.

I have dwelt at length on this one point because it seemed to me the most far-reaching and, for this section, the most essential item. Many other causes for failure were presented and the committee did not agree as to their relative importance. Lack of organization of time and effort on the part of the student is undeniably a major factor. The committee hopes to do some constructive work on this point although it would be a pity to rob the student of his independence of action when it may be only a temporary disability and a final source of strength.

FRESHMAN FAILURES IN CHEMISTRY

PROFESSOR W. G. SMEATON, UNIVERSITY OF MICHIGAN

The topic assigned to me is a report of the committee that was raised to discuss with Dean Effinger causes of freshman failures, restricted naturally to failures in chemistry. Since a few words will suffice to dispose of the committee report, I feel at liberty to append a more general discussion of the relation between high school chemistry and elementary chemistry in the University, having in mind the thought that I may point out possible causes of freshman failures in chemistry which were not considered by the dean's committee.

Amongst the deliberations of the committee only that portion relating to diction may be regarded as connecting directly the general discipline of the preparatory school with failures in academic college activities. First year students often do not connect with rhetoric their themes in physics or chemistry or other subjects apart from rhetoric. Very often the real significance of the topic escapes their observation. Very often it is extremely difficult or even impossible for the examiner to determine what thought they are trying to express. In some instances this unclearness comes from a deliberate attempt on their part to raise in the mind of the examiner a doubt, by grace of which they hope to escape the penalty imposed for ignorance. In other instances they have not had previous experience in writing notebook records, themes and examinations to an extent sufficient to form the habit of organizing knowledge for advantageous presentation. This is assigned more frequently than any other explanation to account for failures or standings lower than those to which the students have been accustomed. Evidently it is wrong to suppose academic merit is rewarded by the evasion of duties.

It would be wrong also to assume that a lack of capacity to express thoughts clearly and connectedly is attributable solely to faulty discipline of the preparatory schools. I believe that more than half of our language equipment may be acquired from inheritance and home surroundings. Parent-teachers' associations may help us correct faults due to the lack of good home influences, but no means will ever be found to bring up to the same high level for all young people the educational influence of our homes. In no instance would we wish this influence lowered. It is our duty, therefore, to insist that every possibility to improve students' diction be considered and tested. We should not excuse pupils from written exercises to

reward them for meritorious work. We should encourage attempts to foster closer co-operation between work of different departments, especially between English or rhetoric and other academic divisions. In the University this co-operation has been achieved to some extent. A rhetoric instructor may assign additional themes to freshmen students who have been reported for poor theme-writing by instructors from other departments. We have here an instrument to help correct faulty diction and we should make judicious use of it. Administrators who are in close touch with the State system of public instruction inform me that high schools make little use of this instrument. I suggest that it would be desirable to institute a closer co-operation between departments of instruction in high schools. Personal experience convinces me that mathematics could be linked in this way with the physical sciences to the distinct advantage of pupils.

Other deliberations of the committee relate to the more immediate causes of freshman failure, such as the abrupt change of living conditions from home to dormitory or rooming house and the current distractions offered by the congregation of a very large number of students. These are not germane to discussion before the Schoolmasters' Club. But the principal more immediate cause of freshman failure may reflect back upon the high schools. Very often freshmen do not devote enough time to study and often they do not accomplish very much in the time that is expended for study. Since habits of industry symbolize experience and experience is augmented by maturity, it is reasonable to expect of college students a more intense and personal application to academic subjects than would be expected of high school pupils. The transition from an attitude of willingness to do what is prescribed and only that, to an attitude of independence which leads to the accomplishment of tasks that should be done, although they have not been prescribed, usually occurs within the first two years of the college course. The problem of the college instructor to develop the attitude of independence during these transition years is facilitated if the students have had a high school training which has fostered the co-ordination of class and laboratory experiences with reasoning processes. There is a marked divergence of opinion amongst groups of educators as to the function of the high school discipline in the general system of education. My opinion coincides with that of the group who uphold the view that the development of reasoning faculties is the principal service rendered by the high school. A discipline which emphasizes the accumulation of facts having practical utility only, to the exclusion of processes of mental development, should be relegated to the trade school, likewise a necessary educational institution, which should serve as a feeder to certain technical institutions and industries.

We must accept the premise that there is a relation connecting high school chemistry and University chemistry, for high schools offer chemistry which is accepted by the University for admission and their graduates take chemistry in the University. The nature of the relation cannot be de-

defined precisely, for it varies with the different schools and colleges of the University. For many years the College of Engineering required chemistry for entrance and admitted to advanced standing in chemistry students who presented it for entrance. High schools which sent graduates to this college with an entrance unit in chemistry, thereby bound themselves to give a chemistry course acceptable to the college. If a freshman Engineer showed unfitness for chemistry 2E, the delinquency was chargeable to the high school. The student could not elect chemistry 1, offered in the Literary College, and receive for this course credit additional to that already granted for entrance. Recently the Colleges of Engineering and Architecture have changed their relations with high school chemistry by making it optional for entrance and by denying the privilege of admission to advanced standing in the case of students who present units earned three or more years prior to the date at which the admission is sought. This change has been made only after long and careful consideration. Twenty years ago the chemistry courses offered by different high schools resembled one another closely and consequently all schools could receive the same treatment with respect to this entrance unit. Now chemistry courses differ widely in different high schools both as regards scope, aim and location in the school curriculum, as I have pointed out a year ago in this assembly. The changed relation permits the Colleges of Engineering and Architecture to accept students from schools which do not offer chemistry and from those which offer chemistry that does not meet the requirements of these colleges. The students are still required to pay the penalty for inadequate chemistry, unless they bring another credit acceptable in place of chemistry.

Very recently the College of Pharmacy and the College of Dentistry have changed their administration of chemistry for beginning students. Formerly their students were given a special course of elementary chemistry, no matter whether they had had chemistry in the high school or not. This course has been discontinued and students of these colleges take elementary chemistry with literary students. But dentistry students are required to complete chemistry 2 and chemistry 3a during the year of work in the College of Literature, Science, and the Arts. It is necessary that the unit of chemistry for entrance shall admit them to advanced standing and they also must pay directly a penalty for inadequate preparation by the high school.

Students registered in the College of Literature, Science, and the Arts who offer an entrance unit of chemistry, have been admitted provisionally to advanced standing at their own discretion. They are transferred from chemistry 2 or 2b to chemistry 1 or 1b without penalty if they have demonstrated unfitness for the continuation course. Also if the entrance unit dates back three or more years they may be admitted to course 2 or 2b only by examination. It is clear that the College of Literature, Science, and the Arts deals more liberally with high schools in the matter of chemistry units.

than do the professional colleges. It is clear also that the different schools and colleges of the University are approaching uniformity in their relations to high school chemistry. Very significant is the fact that nearly thirty per cent of students who might elect chemistry 2 or 2b or 2E, actually do elect chemistry 1 or are transferred to it, in numerous instances with a loss of credit equivalent to that derived from the high school course. Surely this suggests to high school teachers the need of a change in the high school course by eliminating from it much of the system of stuffing pupils with chemical plums, some green, some sour, others worm-eaten and fly-blown. As you know the committee on requirements for entrance to the College of Literature, Science, and the Arts are considering the propriety of changing the administration of entrance units. We do not know at this time what the outcome of their deliberations will be. We realize that a grave situation has arisen with respect to the entrance unit of chemistry owing to a merging of high school interests with those of the trade school.

The interests of pupils who will continue chemistry in college have been served best by that high school course which has provided a pabulum that can be assimilated, digested and co-ordinated into an equipment that can be applied by the possessor. Admittedly a mental pabulum may contain too many facts and in the attempt to assimilate them the digestive organs may become impaired. Again the pabulum may contain tough mineral morsels unsuited to digestive operations by a young and tender mind, or it may represent an unbalanced ration with altogether too much protein and too little of the simple dietary that is suited to youth. In my judgment a principal reason for freshman failure in chemistry may be deduced from this diagnosis, for the average chemistry discipline of our high schools is afflicted with all of the complaints that have been diagnosed. It is wrong to insert in the beginning chemistry course of the high school systematized analytical procedure, chapters dealing with unconnected problems of organic chemistry and bio-chemistry, numerous references to the complicated applications of advanced chemistry to industries, even systematized descriptions of metallic derivatives. A program of this sort is too comprehensive. It contains a great deal of information that cannot be assimilated and organized by young pupils. Its insertion carries the implication that the treatment of fundamental principles has been abridged beyond reasonable limits and that descriptive matter which belongs properly to the first course, has been slighted or omitted. I have subjected to critical analyses the contents of textbooks and laboratory manuals which are used extensively by high school pupils. These analyses reveal the fact that topics which students should know, provided they enter the University and assume advanced standing in chemistry, have been omitted entirely from the texts or they have received bare mention only. As a consequence the pupils are not prepared adequately for the continuation course. Moreover they have had some of the topics which belong properly to the continuation course and since

these topics are presented again in any well-ordered arrangement in the continuation course, the interest of the students is diminished, for they observe and resent what appears to be a repetition of work. By the time they realize that the earlier discipline has left gaps, which must be filled by their own endeavors without guidance from an instructor, they have fallen behind in the work and often it is not possible for them to obtain a good standing, although by mentality they should attain it easily. Naturally the situation is worse if they have only average mentality. It is likewise a bad situation if they have been transferred to course 1 after showing unfitness for course 2.

We read often in the introduction to an elementary chemistry a statement to the effect that the text aims deliberately to arouse interest of pupils by furnishing a multitude of illustrations, usually pyrotechnic, which reveal the wonderful applications of chemistry to industries, affairs of the home, the farm, the hospital, and other interesting possibilities. Invariably a text of this type is provided with splendid diagrams and pictorial representations of processes and products. It will show, possibly, a large ladle spouting molten iron over a foundry floor, which tinges with its roseate glow the imagination of an unsophisticated youth, or perhaps a barrel-shaped container dripping tarvia-X over a roadway, reminding more sophisticated observers of educational moving-picture exhibitions. Commercial advertising is not necessary in textbooks and it is not desirable, for it seems to offer an apology for the subject of the texts. Chemistry does not need apologies nor does it receive them in textbooks from the pens of men who have attained the greatest eminence in teaching. Attempts to stimulate the interest of beginners by illustrating profusely the practical applications of chemistry will tend to give them an utterly wrong conception of scientific discovery, for patient research alone will open the path to discoveries and the preparation for research demands a long and arduous apprenticeship. Therefore I suggest that we examine very carefully elementary textbooks of chemistry which are illustrated profusely and for which is made the claim that they are preeminently practical, in order that we may decide intelligently whether or not they are suited to the needs of our pupils. With this idea in mind I have examined a number of "practical" textbooks, which have been prepared for the use of beginning classes, and I have found that they do not satisfy criteria by which I would adjudge them meritorious. Like ephemerids which flit aimlessly from flower to flower, they present no well-ordered plan of activity. Usually they present a strikingly illogical arrangement of topics. I have in mind one very recent text which deals with some carbon compounds in an early chapter and much later offers a description of the nitrogen family and the periodic classification, and, in the chapter following this, deals with the descriptive chemistry of silicon and aluminium. The principal objection that can be raised against descriptive matter of the average high school chemistry is derived from the fact that altogether too many topics are presented and consequently single topics, which

should be given full treatment because they belong properly to the initial development of the subject, are either slighted or ignored. To illustrate this point we will consider the topic, "oxygen derivatives of the halogen elements." A textbook that is used in many of our high schools does not index the words, bromate, chlorate, iodate. By looking through the body of the text I have found a list of these derivatives in a chapter that deals with chemical formulas and names. The discovery cost me considerable effort because I expected to find the information in another chapter that is not even remotely connected with the one in which the list is located. Save for this list of formulas and names and the mention of potassium chlorate in connection with the preparation of oxygen there is no reference to these important oxidizing agents in this text. Yet the text deals with manganates and permanganates, chromates and dichromates, and like topics. For the sake of comparison I looked up bromates, chlorates and iodates in a school text, written by one of our most eminent teachers of chemistry, which was used extensively by high schools a few years ago. The text provides adequate information on this topic in a location that shows the text matter has been arranged logically.

I have selected this particular illustration to remind you also that the adage, "A little knowledge is a dangerous thing," may be applied to systems of instruction in chemistry like the one developed in the text under criticism. According to this text pupils are instructed to test for bromides and iodides in solution by adding chlorine water and collecting in carbon disulphide the halogen element set free. To what source of information will the pupil turn in case the halogen element is not obtained free at the end of this operation? If the instructor is not able to supply the explanation the situation is very unfortunate, for the text must be wrong in view of the experimental finding, which is easily possible. The text, however, is not wrong. Also it is not right, at least, not all right. If only it dealt consistently with iodic and bromic acids the pupil would be given opportunity to know that iodine is oxidized readily by chlorine water to iodic acid, which is colorless in solution, while bromine is oxidized less readily to bromic acid, also colorless. The pupil would know in addition the analytical application of this fact that it is possible to detect iodides and bromides in the same solution by the agency of chlorine water and carbon disulphide. Time will not permit the illustration of other insufficiencies in the treatment of important topics. Unfortunately they are by no means uncommon in the texts selected for high school use. I suggest that a cause of freshman failure in continuation chemistry courses may be traced to the textbook used in the high school, for the selection of the textbook will help determine the nature and scope of the discipline offered. High school teachers inform me that the interests of the 95 per cent of pupils who do not continue work in college must determine the nature of the chemistry course in the high school. All college instructors agree heartily with this view of the matter. If we grant the premise that the high school chemistry is adapted to the needs

of the majority in all instances, and if we credit also the statement that the high school chemistry course fits pupils for college continuation in some instances and in other instances it does not prepare them for college continuation, we must conclude that there is a division of interests in chemistry for high school pupils. There is then a pressing need to revise the administration of entrance units to the University. Personally I cannot agree with the high school teacher who claims chemistry must be made a trade school subject.

Obviously the chemistry teacher may operate as a possible source of freshman failure if this individual does not know chemistry and cannot teach. Apart from pedagogy the technical equipment that is desirable for the teacher of chemistry should include at least one year of college general chemistry, followed by a half year of qualitative chemical analysis to amplify and clarify the knowledge of commoner reactions. It should include also a half year of quantitative analysis to give appreciation of the fundamental quantitative principles, likewise a half year each of general organic chemistry and general physical chemistry. The history of chemistry would be an appropriate addition to this discipline. In the natural relationships of physics and chemistry these two subjects show common interests in their initial disciplines. It is not appropriate that they be taken at the same time in the high school. The course of general science in the junior high school might give the fundamental concepts that are common to the physical sciences. But it is a very difficult matter to find a teacher equipped adequately to give general science and the textbooks of general science represent confusion worse confounded, for each reflects one-sidedness of attitude and experience on the part of the author. Very little help can be rendered by this agency until texts and teachers are found for it. Consequently the equipment of the chemistry teacher must include considerable physics and that of the physics teacher must include considerable chemistry. Difficulties from lack of this equipment will be more obvious in the large high school than in the small high school, which so often demands physics and chemistry from the same teacher.

THE FORMATION OF STUDY HABITS IN ALGEBRA

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One of the problems to which we, as teachers, are giving much thought today, is that of supervised study, or training children in the correct habits of study for really the two problems are closely related. Our ideas of school and of teaching have changed greatly during the last few years and in algebra we no longer aim to develop power to solve difficult and intricate problems, because that aim will not take care of the ever increasing number of students who get no education beyond the high school.

In teaching algebra we must strive to develop habits in our boys and girls which will enable them not only to solve their algebra problems, but habits which will be useful to them later on in solving the bigger problems of life. Of course, the pupils will think of these habits as belonging to algebra but if they are correctly developed they will be used in other places besides algebra class.

The students taking algebra are at an age when their habits are readily formed; they are great imitators and ready followers and as they are eager to get ahead, they will generally follow advice. Many of them have learned no methods or habits of regular study, so the task of teaching them how to study and directing them towards the formation of correct study habits is a most interesting one.

I think the story or thought problem affords us the best opportunity for trying to develop correct habits of study. I choose this type of problem because it requires more thought than the formal problem and it is a real test of a person's ability in algebra. Here, if anywhere, the pupil needs to know how to study — how to attack his problems and he needs something besides mechanical skill which formal problems develop. Then, too, this is the type of problem which he will meet later and more and more we are thinking of the practical side of algebra in teaching.

In working with the thought problem, I have considered all phases of it—why we use it, what habits it will develop, how to develop these habits, the thought processes used in solving the problem, and the best way of solving it.

We are all familiar with the reason for its use — its name thought problem is self-explanatory. So I have next listed the habits which we wish to develop by means of this type of problem as follows:

1. Reading a problem correctly and sensing it — that is, grasping it as a whole.
2. Thinking in numbers.
3. Thinking of a problem in terms of quantitative relations instead of words.
4. Ability to use good reasoning power.
5. Analysing a problem to see what's wanted.
6. Accuracy.
7. Neatness.
8. Being concise and to the point.
9. Training the memory.

I have taken the three most important of the habits and have listed (1) several ways of developing them; (2) questions to ask the student to direct him towards the correct habit; and (3) ways of testing to see how well these habits are developed. The three habits which I have chosen are:

1. Reading a problem correctly.
2. Correct process of reasoning in solving a problem.
3. Accuracy.

In order to develop the first habit — that of reading a problem correctly, I try the following methods:

1. Have students read aloud to class.
2. Class read in chorus.
3. Students read problem and then tell it to the class in their own words.
4. Have two or three students read a problem and then compare their interpretations.
5. Have a student read the entire problem and then pick out the most important points then rereading the problem and stressing these points.

To lead to the formation of this habit, I ask these questions:

1. Give the main points in the problem.
2. Tell what you have given.
3. Tell the class the problem.

The only way to test for this habit is to have the students read several problems and see how well they can repeat the problems or in other words see how much they get from this reading.

To develop the second important habit — that of using good reasoning I try these methods:

1. Read the problem and see what we are seeking in it or in other words see the end in view.
2. Pick out all the facts related to this end.
3. Arrange these facts in the order to be used.
4. Solve the problem and see if the resulting answer could be put in place of the quantity sought and the problem read correctly.

In order to help them acquire this power of reasoning I ask them these questions:

1. What is the problem about?
2. Have we enough facts for our equation — if not what do we need?
3. After solving the equation, does the answer secured sound reasonable?

I test for this habit by trying the following methods:

1. Give problems and have the pupils analyse them only.
2. Give problems with insufficient data and see if the pupils can tell what is lacking.
3. Give them problems which are impossible and see if they recognize them as such.

To develop the third and last habit, that of accuracy, I find the best method that of making them copy every problem before solving. Other methods are:

1. Stressing small but important details.
2. Checking some problems.
3. Make them think twice before putting work on board and not letting them use erasers in drill work.

The only question to ask them to direct towards this habit is "Have you copied your problem correctly"? and the best way to test for accuracy is to dictate problems and check over the copy of them.

The next thing to do was to put these theories into practice and fortunately my work was so arranged that I could. I had two sections of algebra I of about twenty students each. These sections had not been divided according to ability, but happened quite fortunately to be divided very favorably for my experiment.

Section I was a slow section while Section II was about the average. I had no way of judging these sections other than my own personal opinion as they had been given no intelligence tests, so I was unable to get their intelligence quotient. So I could only compare them with other sections I had had and judge them according to the way they took hold of the work in class.

I chose a group of story problems to use in my first experiment and so I read and explained to Section I a list of ten suggestions to use in the study of these problems, and had them copy these suggestions in their books. Each day in class we worked several problems according to these "hints" so the class would know how to use them in the preparation of the following day's work. Section II I did not help at all, not even reading the suggestions to them, but left them to their own methods of solving the problems.

The ten suggestions were as follows:

1. Read the problem over at least twice.
2. What is it about?
3. How many unknowns are there?
4. What does the problem ask for?
5. What shall we let "x" equal?

6. Can we express another number in terms of "x"? If so, do it.
7. Read the problem again and see the relations between the numbers.
8. From these relations form an equation.
9. Solve the equation.
10. Substitute the answer for the unknown in the original problem and see if it is reasonable.

We worked about fifty problems in each section and I tabulated the results. Knowing just how I was keeping these results and that they might see the chart at any time, I was able to develop keen interest on their part.

The following results by sections proved most interesting.

<i>Section</i>	<i>Number assigned</i>	<i>Number correct</i>	<i>Number not tried</i>	<i>Number with no equation</i>	<i>Number with wrong equation</i>	<i>Mechanical errors</i>
I (poor)	1089	.850	.028	.01	.078	.01
II (good)	893	.881	.046	.008	.05	.004

Even with no help Section II shows better results than the poorer section, but I am positive Section I would have had a much poorer average with no help at all.

Realizing that the results of the classes as a whole did not give me the best results, I then chose one student from each class, choosing two of equal ability according to my judgment and compared their records as follows:

<i>Section</i>	<i>Number assigned</i>	<i>Number correct</i>	<i>Number not tried</i>	<i>Number with no equation</i>	<i>Number with wrong equation</i>	<i>Mechanical errors</i>
I (poor)	49	.92	...	.06	...	.02
II (good)	47	.83	...	.02	.04	...

Here I discovered that the boy with whom I had made a special effort to develop good habits of study, was giving better results than the boy in the brighter section but whose habits of study I was not stressing particularly. He worked in class more systematically and though often a little slower to grasp an idea, he retained it a longer time than the boys whose habits of study hadn't been trained. These charts showed me many other interesting facts not directly related to this problem but which were very helpful to me. This semester I am giving special attention to developing these habits and have told my classes just what my aim is and they, realizing that it is for their good, are giving me their hearty cooperation in it. If I am able to teach them some algebra and some study habits, I will feel that I have accomplished quite a bit and that the time has been well spent.

RELATION OF MANUAL ARTS TO VOCATIONAL EDUCATION

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Many reasons have been advanced for the introduction of manual training into the school curriculum but its chief value as an educational medium is generally recognized today to be its power to bring the pupil closer in touch with real life, especially home life, and to vitalize and motivate his other school studies. It also affords a legitimate satisfaction of his creative instincts. Furthermore, the aims of this work are to enable the pupils to gain an insight into the commercial and industrial world and thus be better equipped to make an intelligent choice of a vocation. Incidentally, the child will obtain a working knowledge of the practical handling of tools and materials with a fair degree of skill and dexterity. This offers the child a welcome relief from the continuous application to book studies and promotes his physical development. Dr. Dean of Columbia University, characterizes it as "the mustard in the sandwich as in most schools it is given so short a time it becomes little more than a relish." Many other claims are advanced for the work such as the creating of habits of initiative, concentration, accuracy and resourcefulness. It should be remembered that the purpose of this work is the acquirement of an all-around training, not of skill in a particular vocation nor the production of models of work. It is a part of the child's general education and must be closely correlated with regular academic subjects. It is lately being made more practical and useful by the introduction of a course in household mechanics.

It is true that manual training was brought into the schools for the purpose of re-vitalizing the curriculum yet in many school systems we find that the teachers of the subject have made it just as formal and dry as any of the academic subjects ever have been before. Not infrequently in the history of education, the tendency of any innovation in school development has been that after a time it has become formal and the subject matter instead of the child, has received first consideration. From the point of view of the supervisor, the child must be the paramount issue. Recently, as the industrial element has found a place in the school, it was because of its practical social value. Even Pestalozzi had a great insight into the value of industrial training for delinquency in society. This fact has been recognized by penal institutions in this country and has resulted in many industrial schools and other manual labor institutions. In many parts of our country today the words "industrial education" call to mind a reform

school. The practical and social value of handiwork has been the justification of these institutions.

The school man has more and more sidetracked practical and social values and has appropriately named his conception of the practical arts in the school "manual training." The teachers of this work have followed the lead of teachers of academic subjects and have attempted to justify their work by saying it trained the power of observation, the reasoning factor, and that it trained in general habits of neatness, accuracy, etc. Many manual training teachers have faithfully done their work and have accidentally reached many boys through their interest in things concrete in general. This has been in spite of the prevailing theory as to the place in the school for manual arts. Teachers of manual training have been even slower than teachers of academic subjects in accepting modern educational thinking.

Many teachers have tried to justify manual arts in the schools by claiming that it has vocational guidance value and that it is pre-vocational. They have failed to realize the fact that where manual training is set and formal, requiring all boys to make the same projects, it often turns the boy against anything mechanical. As a result it is the social and other advantages in a trade rather than the nature of the work itself which leads a boy to choose it as a vocation. Furthermore, manual training as it is usually taught has had no semblance of any particular trade; therefore, it has practically no pre-vocational value and can claim only a formal disciplinary justification.

The tremendous recent interest in vocational education resulting in State and National aid, was necessary to get manual training out of the rut in which it had been complacently moving for many years. As the vocational movement gained headway, the cry was raised "What about manual training?" This vocational education movement has been the best thing which could have happened to manual training. It has given it a general Spring house-cleaning. Manual training will stand on its own feet and will hold a definite place in general education. The constructive instinct in children is just as fundamentally educational as is their play instinct. In all children there lie dormant from infancy two general instincts—one is constructive and the other destructive. If the constructive instinct is developed, the other largely disappears and if a child never learns to create things, his destructive instinct will predominate.

Dr. Brewer of Harvard University, claims there is really no such thing as manual training in the old formal disciplinary sense and that no one would claim that engravers or dressmakers having well trained hands would on that account be better marksmen or billiard players. He goes further to say that training and observation, correlation between hand and eye, squareness of character, honesty in workmanship, all these maxims and more of the same nature, we must discard as statements of the aims of manual arts. "We must outgrow many of the absurd claims which used to be made for manual training. It was thought that training in one process would directly cause a gain in all other processes in which hand, eye, or

mind were used and that this gain would come automatically without any conscious striving. We know now that it is our duty to go as directly as we can to the real situation for which we wish education. All other kinds of training have about them the tang of artificiality, or a training which is carried on in a rarified atmosphere. Learning in a vacuum is almost as difficult as breathing in a vacuum.

No doubt, any successful action which is thought to be interesting or useful, will serve to awaken boys and girls and will perhaps develop that most necessary possession, the sense of success or the ideal of accomplishment. If we who are interested in manual arts use false arguments others can use them as well or better. For example. A professor of Latin recently stated in all seriousness that the study of Latin is good preparation for teaching a person to drive an automobile. He went on further to state that one who is translating a Latin sentence must watch the ends of a number of words at once and this ability to watch a number of changing or changeable things at the same time is exactly the thing needed in driving an automobile. No doubt, the ideal which should fill our manual arts workrooms in junior high school and part-time school is the ideal of socially valuable work.

The following questions should be constantly before teachers and pupils:

What practical arts does society need?

What work needs to be done now?

What services are required in home, farm, school, shop and factory?

The organization of our course in manual arts must take into consideration the answers derived from a study of these questions.

The formalized courses in manual arts are based on unproved assumptions. These assumptions usually being that a given exercise is useful for its own sake, or that an article or method if created will somehow or somewhere prove useful. If a home is actually in need of a taboret or a sleeve board, by all means let this particular article be made, but we should certainly suspect something wrong in the interpretation of human demand if we found all the boys in a given class making the same article at the same time. It is not likely that all the mothers of all the boys need taborets or sleeve boards simultaneously. Shall we make a picture frame because we want to teach the bevel joint, or shall we teach the bevel joint because we want to make a picture frame? Shall we put a pane of glass into a window frame because we want to teach glazing or shall we teach glazing because we want to put glass in? Better still, no doubt, we ought to teach the bevel joint because we need to make the picture frame and we ought to teach it chiefly in and through making the needed frame or through making another needed article requiring such a joint.

What then about exercises? May we not lay down tentatively the following statement as a proposed axiom for the manual arts: Use exercises only when there is a real need for them or where there is no other way? In cutting glass it would be too expensive never to teach the exercise

except on an actual job; therefore, we must practice upon scraps of glass. In cutting a piece of iron with an acetylene torch, the handling of the torch for production work the first time would be too dangerous and we must, therefore, give exercises in the handling of the torch on scrap iron. In milling a part there might be risks or injury to the milling machine unless preliminary exercises are given. In vulcanizing, damage to the tire might result unless exercises upon scraps of rubber are first given. In all such situations, no doubt, exercises are appropriate. In the teaching of certain other processes, situations will arise where a temporary resort to exercises, while offering no saving of danger or expense, will be of more advantage than actual productive work but the tendency to get away from exercises in manual arts unless it can be shown that such exercises have a superior value or a real necessity, is certainly a right one.

The following are some of the specifications of manual arts methods:

1. Work resulting in a socially or commercially valuable service or article for which there is a real, previously expressed need.
2. Work resulting in a socially or commercially valuable service or article for which there is a real need not expressed.
3. Work resulting in a socially or commercially valuable service or article for which there is no present need.
4. Work resulting in a valuable article but through a round-about or deliberately old fashioned process.
5. Work resulting in a valuable service or article but with an inordinate expenditure of effort or time.
6. Work resulting in a curiosity.

No doubt, the above set of specifications contains many overlapping items but, in the main, it can be discovered beyond question of doubt that it represents a description proceeding from the desirable to the undesirable. Let the manual arts teacher, therefore, check his work by the above scale and reject No. 1 for No. 2, 3, or 4 only when rejection becomes necessary.

Some teachers of manual arts have excused their work by saying that they were making men and women and were not making any definite mechanical product. The answer to such teachers is that we ought to make men and women and the product at the same time; or, as Dr. Brewer states, "We should make products for men and women, by men and women. The deliberate choice of a round-about method, no doubt, has a bad effect upon the pupils but not so bad as seeing a thing done inefficiently. This has a bad social effect of wasting human power."

One reason why we are concerned in improving methods of teaching manual arts is that we are extremely anxious that teachers of the other subjects shall learn by a study of methods in the shop. We are hoping that the time will come when teachers of English will measure their work on the basis of a scale similar to the one mentioned above. Such specifications might at once be translated into terms of English composition both oral and written, and possibly into Arithmetic and Geography as well.

If manual arts teachers are to make their work serve human needs, they must avoid over-attention to the by paths such as toys, fancy furniture, or other inherently useful but decidedly restricted fields of industry. Manual arts, however, if they are practical, must relate to the daily work of mankind and if they are Arts, they must be productive. The kind of work taught to children must relate to the kinds of work right out where workers are. Live samples of the work of the world must be provided and the samplings must be broadly selected. The most efficient teaching may be done by the project method. The project must be a thing which is thought to be project by the pupil himself. The making of a needed article for home may be the best possible project while at the same time the making of a bookshelf needed in the school room may be even more interesting and valuable.

Some of the most effective and valuable instruction has been given by tying the home more closely to the school through the medium of household mechanics. This offers one of the best possible avenues of approach to the world of social needs outside the schoolroom. Household mechanics is rich in valuable possibilities. Many of them have been only lightly explored. What better work can the school do than the training of leaders. The foremanship idea as it is being developed in connection with household mechanics offers a plan of participation in government. The method of group instruction in the general shop makes it necessary to develop and train a foreman for each group; thus, one group may be doing plumbing work, a second group may be working at the electrical bench, a third doing sheet metal work, and possibly still a fourth group doing wood work or gorging. Such diversified work challenges industrial intelligence and leads to respect for workmen. Whenever a project involves work which is beyond the ability of the students, such a situation offers an opportunity for the teacher to gather the students about him to hear of skills beyond present ability. The sense of social contributions and individual achievement for social good is a more important product of shop work than actual skills. Prevocational work, or work which offers self-discovery and try-out, forms the best possible manual training course. We must no longer limit the projects to even one or two materials but a variety of materials and appropriate tools must be used. This need not be more expensive as with the present high cost of wood, most other materials are cheaper. The general shop equipment need be no more expensive than the old style lay out because only one or two units of each shop activity need be provided.

My plea for the manual arts is for the teachers of this subject to broaden and enrich the subject by a closer study of life and its economic problems. In our mad rush of progress, we have allowed invention and production engineering to go far ahead of distribution engineering. Transportation problems today are causing no small portion of our economic ills. As an example, no finer apples are grown anywhere than those grown in Michi-

gan, yet a certain chain of grocery stores is selling New York State apples, and in New York State certain stores are selling Oregon apples.

I do not think it is stretching the point to urge manual arts instructors as well as all other teachers to take a greater interest in educational guidance. These problems can be skillfully worked into comprehensive plan to the great benefit of all.

Every year vast armies of young people leave our schools as soon as they reach the compulsory age limit. In most cases they are at best, only poorly trained to meet Life's battles. R. L. Cooley of Milwaukee, speaks of them as "Our great American desert rich in native fertility, it will yield when properly irrigated by education. Up to date we have scarcely favored it with an educational dew fall. Private parties have discovered a few water holes and fenced them in and missionaries with a faith worthy of our emulation 'that whosoever shall give one of these to drink shall in no wise lose his reward', are as ever found pioneering where needed work is to be done."

POTTERY AS A HIGH SCHOOL ART PROJECT

MR. ALBERT C. ARMSTRONG, DETROIT

Pottery is almost as old as our civilization. Examples of pottery have been found dating back to the early Egyptian Periods and in our country to the American Indians. As practiced at first it was purely for utilitarian purposes and not for the sake of its beauty as most of our modern pottery is.

It is interesting to study the development of the art and it is well worth the time required. It is not the purpose of this paper, however, to study this phase of the work but the value of pottery as a High School subject.

There are those who believe that pottery is not a proper subject for school study but the more I teach it and observe its effect upon pupils the more convinced I become that it offers wonderful opportunities for the teaching of sound art principles.

All the elements of art principles enter into the making of a piece of pottery. Proportion, line, balance symmetry and color each play an important part. Before we begin the construction of a piece we must carefully plan each step and train the judgment to choose the finer forms. This can be done best by cutting many shapes from paper and carefully comparing them before deciding which will fulfill the conditions of the problem best and conform to all the laws of good design.

The pattern having been decided upon it must be constantly before us to guide the line and proportion of the piece as it is built. I am speaking of hand built pottery only as I believe this to be the best method to use for the first year at least.

The great danger in school pottery is the tendency toward the production of mechanically perfect pieces rather than to a free expression of the individual worker. I do not mean by this that the work should have less finish than it is possible for the craftsman to secure by recognized educational means but I do deplore unnecessarily heavy, sandpapered and turned pottery. Our Indian pottery is charming in its simplicity and freedom of expression. The effort should always be to produce freedom of expression, individuality and a feeling for fine proportion and line.

It is surprising how quickly students master the technique of the medium and realize the limitations and possibilities of the material. In many cases it only requires the making of one piece before a fairly good mastery of the clay is acquired.

There are many obstacles in the way of the extension and development of pottery in schools. One of the greatest being the equipment necessary for the firing and glazing of the pieces. A good kiln must be installed capable of holding thirty or forty pieces of average size. I do not believe the work should be attempted unless the complete process can be carried on in the school. I realize, of course, that students cannot fire and glaze the work themselves owing to the time required but they may have the opportunity of observing the entire process and assisting in the glazing and the stacking of the kiln.

The first semester is spent in learning the technique and limitations of the medium. I would stress the importance of keeping the work true to the design always making due allowance for the inexperience of the worker. We have selected for the first semester problems a bowl, tile with incised design, a small vase and jar with a cover, believing these will give the most experience in the least time.

In the second semester the work involves a study of historic pottery. We selected American Indian, Egyptian and Grecian pottery, for our study. Indian pottery for its simplicity of shape and free handling of decoration, Egyptian pottery for its simplicity and the introduction of handles and Grecian pottery for its fine proportion and lines.

Before beginning the work of this semester a visit was paid to the Art Institute to study and sketch examples of pottery of the different periods. The Educational Director of the Institute, Mr. Poland, kindly assisted us and gave the students an interesting talk on the work of the Indian, Egyptian and Grecian potters. This gave the students an intelligent background for their class problems. It was a pleasant surprise to note the number of students who added to their knowledge by visits to the Public Library for further study.

In the third semester the work is devoted to a study of modern pottery. A visit is paid to the Pewabic Pottery, where students have an opportunity to study the work as carried on in one of the best of our American Potteries. In the class work emphasis is placed upon form and decoration. Various ways of decorating and the suitability of the decoration to the form are studied. Incised, built on and underglaze methods are used. Care must be exercised in decorating to see that the decoration perform the purpose intended, that is, to enhance the beauty and not detract from the form.

The fourth semester involves the use of the potters wheel, the process of mold making and casting of pottery. Glaze composition, the weighting of the chemicals, grinding by hands and the applying of the glaze are a part of this semesters work. Instruction in the stacking and firing of the kiln is given.

I have briefly sketched the work of two years as this is as far as we have carried the work at Eastern and for a comprehensive view of pottery is, I believe, sufficient. Some of the students are seriously considering

pottery as a vocation One of the boys expects to enter Alfred University this fall to continue his work and fit himself to become a potter.

While the work is in its infancy I believe it has a bright future. The opportunity for co-operation of the Chemistry Department in offering a simple course in the chemistry of glazes and clays is not to be overlooked Pottery is, I believe, a live subject and one that is bound to develop as the work becomes better understood.

LIBRARIES IN DETROIT PLATOON SCHOOLS

MISS MARTHA C. PRITCHARD, DETROIT

The Platoon System of organizing elementary education provides two features not heretofore stressed in primary schools, the auditorium and the library.

The sponsors of platoon organization believe that the present day aim of the schools to give socializing influences and opportunities to the children can be greatly promoted through groups who grow up in the atmosphere of common interests gained through auditorium discussion of common problems included in study of city departments, current events, literary interpretation, dramatization, music and art appreciation and school affairs.

They also believe that a large opportunity for increasing the common fund of knowledge and the intelligent understanding of present day life and problems will be gained through fostering habits of reading and an introduction to good books and magazines. That comprehension of the resources and meaning of the public library together with familiarity with its procedure and a taste for its contents will lead ultimately to a wider use of this public educational institution of which now only 1% of the literate population of the United States avail themselves.

The need of bringing good books within the reach of all children is self-evident, the care exercised in the selection of these books means much in the standards of taste for the next generation of public library patrons. The school has a strategic opportunity to lead a child to read books on subjects in which his interest has been aroused through curriculum studies or through judicious introduction at a timely opportunity. Children who have read few if any books or who have read only under pressure have been discovered to themselves as real readers when placed in the environment of the school library and allowed to browse about among the books enticingly arranged for their perusal.

The Platoon School provides a room, at least twice the size of a classroom, for library purposes only. This room is equipped with open shelving, tables and chairs suited to children in grades 1-6. It is organized as a children's library in the public library, is organized and contains books selected with the greatest care around the curriculum subjects as a core but excluding text books in general. There are few story books of recent writers since these are provided by the public library in the children's rooms but there is a goodly sprinkling of the tried and tested children's stories of all

time along with biographies, histories, stories of children of other lands, nature stories, handicraft material for both boys and girls, scout material, fairy tales and poetry. The list of magazines is short but select and largely chosen for its help in class work. A shelf of books on education is provided for the teachers as well as a few educational magazines. There is a "library teacher" in charge of this room during the entire day. Her qualifications must be the same as that of any teacher in Detroit elementary schools with the added requirement of a minimum training of a six weeks summer course of its equivalent in library science.

Into this library, in charge of this library teacher, the children of all grades above the second come two periods (one-half hour each) each week, the small children first and second grades come once a week. Voluntary selection of the activity the children engage in individually is a strong feature and is allowed so long as something worth while is undertaken.

Training for leisure time is one of the chief problems in the minds of the school people today. The eight hour day and the half or whole holiday once a week beside Sundays means an added responsibility on the part of the man thus set free. In the words of a Detroit employer known the world over, "You are given this Saturday holiday to work your gardens, to become better acquainted with your families, and to have time for self-improvement." If our workmen of the future are to have some time for self-improvement the work of the Public Library will be increased many fold particularly if Detroit's school plan of library training is carried out generally.

The success of a school library depends first on the skill and initiative of the library teacher and second, on the cooperation of the faculty of each school. The platoon library is not alone a distributing center for materials to be used in the school, though this is one of its important functions. The school library, as Detroit educators see it, is a distinct educational factor—a laboratory for the natural exercise of the mechanics of reading taught in the home room; a mine from which to secure rich supplies of materials which become especially attractive because featured at a time when related to interests aroused in the class-room; a garden in which the seeds of literary appreciation and discrimination are to be planted under the most favorable conditions and all these fruits to be nurtured through the closest cooperation of the library-teacher with the classroom teachers.

There are at present 29 library rooms at work in Detroit Platoon Schools. The first year of the experiment is nearly finished. One principal of a school having an exceedingly successful library goes so far as to say, "I believe the library is the only place in our schools in which we are actually doing what we set out to do in education."

PROCEEDINGS OF THE FIFTY-SEVENTH MEETING, HELD AT ANN ARBOR, MARCH 30-31, 1922

Hill Auditorium, March 31, 1922.

The meeting was called to order by President J. B. Edmonson. Upon motion the minutes of the 1921 meeting were considered read and approved as published in the 1921 Journal.

The financial report of the Secretary-Treasurer and of the Auditing Committee were read and approved.

The report of the Committee on Resolutions was read and adopted.

The report of the Nominating Committee was read, adopted, and the officers named therein declared elected.

The report of the Joint Committee on University Entrance Requirements was read by Principal H. S. Doolittle, discussed by Professor A. H. White, and adopted.

The report of the Committee on Modern Language Survey was read by Professor A. G. Canfield, and accepted.

The President appointed Supt. L. A. Butler, Ann Arbor, Asst. State Supt. C. L. Goodrich, Lansing, and Principal B. J. Rivett, Detroit, as a committee to act in accordance with Resolution No. 2 of the Committee on Resolutions.

SURVEY OF FOREIGN LANGUAGE TEACHING. DIGEST OF COMMITTEE'S REPORT

PROFESSOR A. G. CANFIELD, UNIVERSITY OF MICHIGAN

A. Data furnished by Principals of the High Schools on the North Central Association's list of accredited schools (114).

1. Table showing amount of language work offered and given.

	Greek	Latin	French	Spanish	German
	2	2 3	4 2 3 4	2 3 4	2
Number of schools offering.....	5	32 5	77 73 19 13	30 6 5	5
Number of schools giving.....	5	31 5	45 71 17 9	28 5 4	5

Changes since 1914. Net loss by dropping and shortening courses exceeding gain by lengthening and adding, 49 years (in total of 755).

2. Class periods, 45 minutes in 80 schools; 40 in 13; 60 in 10; 50 in 5.

3. Length of period of preparation of teacher. Ranges from 2 1-2 to 10 years; most often set from 4 to 6 years, including high school. More supposed necessary for Latin than French.

4. Salaries. "Same as for other teachers." The word "woman" should be intersed.

Increased salary for further professional preparation. 36 report having such a plan.

5. Ability to speak the language taught (if a modern language) was thought "important" by 85; "indispensable" by 23; 2 said "No".

7. Emphasis on language study. In 63 schools a foreign language is required for graduation (two years) in some course or courses (College Preparatory", "Literary," "Classical," "Scientific"); in 8 it is required of all pupils; in 44 no advice is reported given; in 12 it is advised because required for college; in 35 it is advised on "cultural" grounds; in 13 schools it is advised as an aid to English, or as mental discipline, or a necessary tool for professional study. In 3 schools the advice depends upon the ability of the student. One school advises against foreign language as of minor importance.

8. Latin is begun in the 9th grade, the modern language more generally in the 10th and 11th. Yet pupils of different grades seem to be found together in most language classes.

9. Enrollment. Comparatively few pupils carry the study of a foreign language beyond the second year. The following table shows this.

	Total Enrollment	Latin	French	Spanish
First year	16,691	6,419	4,423	1,937
Second year	11,837	4,015	3,092	757
Third year	8,901	805	498	67
Fourth year	6,854	382	149	25
	Total Enrollment	Latin	French	Spanish
Compared with first year:				
Second year	70. per cent	62.5	69.9	38.6
Third year	53.3 per cent	12.5	11.3	3.4
Fourth year	41.1 per cent	5.9	3.	1.3

Years of language preparation presented in 1920 by freshmen entering the University.

	Total	Less than 2	2	2 in two	3	4
Number of students ...	1200	133	427	239	196	205
Proportion of whole ..		11.1	35.6	19.9	16.3	17.1

10. To what extent is failure in the subject responsible for the decrease in 2d, 3d and 4th years? Answers permit no certain conclusion.

11. Reason most frequently given for dropping one language to begin another: "It is too hard"; "It is not practical."

12. No marked change in the number foreign languages now. Increases here, decreases there. In the High Schools having more than 1000 pupils each, with a total of 17660, the increase in total enrollment over 1914 has been 38.8 percent; the increase in foreign language pupils 56.9 percent. There were 94 students of Greek reported as against 12 in 1914.

13. Observed results of foreign language study. 79 replies 63 say "improved knowledge and use of English; 33, "enlarged range of interest and sympathy;" 37, disciplined habits of study and mental application." 12. "clearer thinking". Vaule was doubted by 2.

14. Length of course necessary to obtain results. Usually the length of the courses in the school concerned.

18. Criticism. Answered by 53. "Insufficient knowledge with the language taught", 30; "mechanical, lifeless teaching", often coupled with former criticism, 21; "failure to connect subject with present life and interests" (mainly with reference to Latin), 13; insufficient professional training in "how to do it", 2.

B. Data furnished by teachers. Replies from 87 teachers of Latin, 98 teachers of French.

1. Experience.

Number of years of experience.....	0	1	2	3	4	5	6	7-9	10*
Number of teachers: Latin	6	5	10	5	2	7	9	6	37
French	13	13	17	19	8	2	2	9	14

2. Specialization in teaching: one subject or more

Number of subjects taught	1	2	3
Number of teachers: Latin	38	41	16
French	35	53	27
Spanish	11	13	3

3. Preparation. Ranges from 2 years high school study, with a correspondence course, to the M. A. degree (5 in Latin). Not infrequently prepared rather for some other subject than the one taught.

4. Means used for professional improvement.

Means used

Number reporting:

	Journals	Books	Summer Study	Travel	Other	None
Latin	62	22	26	4	4	11
French	49	38	27	11	43	6
Spanish	10	14	9	2	9	1

Relation of preparation in foreign languages to success in college work.

Definition of Groups

Group 1. Students who have had less than 2 units of any one foreign language.

Group 2. Students who have had 2 units, or 2 1-2 units, of some one foreign language, and less than that, generally none, of another.

Group 3. Students who have 2 or 2 1-2 units of each of two or more foreign languages.

Group 4. Students who have had 3 or 3 1-2 units of one foreign language and less, generally none, of another.

Group 5. Students who have had 3 or 3 1-2 units of one foreign language and not less than 2 nor more than 3 1-2 of another.

Group 6. Students who have had 4 units of some one foreign language, usually with 2 or 3 of another.

No.	Hours	P'ts	Average		Number attaining			Percentage		
			H'rs	P'ts	15 h'rs	15 p'ts	15 both	15 h'rs	15 p'ts	15 both
125	1447	1332	11.6	10.6	61	39	36	48.8	31.2	28.8
411	5165	5910	12.6	14.4	258	195	181	62.6	47.4	44
234	3199	4220	13.7	18	176	153	146	75.2	65.4	62.4

* Or more.

87	1163	1598	13.6	18.4	62	51	48	71.3	58.6	55.2
102	1404	2030	13.8	19.9	78	69	69	76.5	67.7	67.7
199	2816	4423	14.2	22.2	166	156	151	83.4	78.4	75.5
1158	15194	19503	13.1	16.8	801	663	631	69.2	57.2	54.5

Preparation in foreign languages offered by Freshmen sent home for poor work in February, 1921.

Total	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
69	21	36	7	1	3	3

REPORT OF THE COMMITTEE ON RESOLUTIONS OF THE MICHIGAN SCHOOLMASTERS' CLUB

I. *Resolved*, That the Michigan Schoolmasters' Club express by this resolution its public appreciation of the life long service of Wooster W. Beman, Professor of Mathematics in the University of Michigan, to the cause of public education in the state and its sense of deep loss in his death. He was one of that remarkable group of men who contributed largely to the development of a type of educational institution, the state university, and yet found time to give loyal support to this Club and be a constant inspiration to hundreds of young men and women in our public school service.

II. *Whereas*, The future of our democracy depends upon the intelligence of its citizens, and

Whereas, We are at present a nation of sixth graders, and

Whereas, The increasing complexity of our industrial and social life demands better trained citizens, be it

Resolved, That the public support of high school should be encouraged even more than in the past

III. *Whereas*, It is a well known fact that, on account of an unequal geographical distribution of wealth, the boys and girls of many sections of Michigan do not have so great an opportunity for education as the children in the city, and

Whereas, All children should have the privileges of well equipped school buildings and well-trained teachers be it

Resolved, That means should be provided to equalize more nearly the financial resources of school districts in the state.

IV. *Whereas*, The great increase in high-school attendance during the last ten years is, to a very large extent, the result of prolonging the school life of a certain type of pupil who formerly left school in the sixth, seventh, or eighth grade, and

Whereas, Although it is highly desirable that these pupils should remain in school for the longer period, it is equally desirable and necessary that the high school curriculum should be adapted to the needs and abilities of all the pupils, be it

Resolved, That such adaptation should not be permitted to lower the standards which those of higher mentality are expected to attain.

V. *Be it further resolved:—*

1. That the Club endorses the plans of the Michigan State Teachers' Association to secure the enactment of a constitutional amendment providing for the election of the Superintendent of Public Instruction by an enlarged board of education. The members of the Club believe that this amendment is necessary in order to insure the taking of the office of Superintendent of Public Instruction out of politics, and the placing of it on a par with that of the office of President of the University or of other educational positions of high rank.

This amendment is further urged because of the necessity of securing in the office of Superintendent of Public Instruction the very best of educational leadership, with freedom and opportunity to formulate progressive educational policies, and with freedom from such political considerations as interfere with the development of the best educational system. The members of the Club pledge their enthusiastic support to the State Association in this constitutional campaign.

2. That this Club most earnestly recommends that the salaries and tenure of office of the Presidents of the state normal schools be determined by the State Board of Education.

3. That the revised standards for accrediting high schools adopted by the University of Michigan be heartily approved.

4. That all high-school teachers should have as a minimum preparation four years of college or university training, with at least fifteen semester hours of professional work.

5. That, in order to encourage young people of exceptional ability to enter the teaching profession, and in order to retain the services of the best teachers in Michigan schools, it is very necessary that the teachers of the state receive adequate salaries.

VI. *Resolved*

1. That the Executive Committee of the Club be urged to create a standing committee to be known as the Committee on Investigations in the field of Secondary Education. It is recommended that the committee consist of the President and Secretary of the Club and three other members selected by the Executive Committee from the membership of the Club. It is further recommended that part of the members selected at large be appointed for terms of three years. It is further recommended that this committee be expected to encourage or conduct one important investigation each year in the field of Secondary Education and to provide for a report of the same at the annual meeting of the Schoolmasters' Club.

2. That the Michigan Schoolmasters' Club condemns the alleged practices of certain Teachers' Agencies calculated to encourage promiscuous applying for positions to create false impressions concerning the adequacy of the number of well-trained teachers, and to develop other similar abuses likely to undermine the better standards of our profession, and

That the Club recommends that the President appoint a committee to investigate these alleged practices.

Further, That this Club urge upon the Michigan State Teachers' Association the importance of the early establishment of a Registration Bureau for Teachers to the end that the above questionable practices may be wholly eliminated, the teachers saved the large sums of money now paid to private teachers' agencies, the earlier elimination of the unfit teacher, and the placement of teachers put on a professional basis rather than a money-making one.

3. That the Schoolmasters' Club expresses to Secretary Charles A. Sink, of the University School of Music, Superintendent L. A. Butler, of the Ann Arbor schools, and to Director George Oscar Bowen, of the Ann Arbor Public Schools, its appreciation for the complimentary concert given for the pleasure of the members of the Schoolmasters' Club.

VII. *Resolved*, That the Michigan Schoolmasters' Club approves the action of the Library Section of the M. S. T. A. in appointing a committee to submit a recommendation to the teacher training institutions of the state, to the end that a minimum amount of training in library use and methods be required toward the granting of a teacher's certificate.

That the thanks of the Club be extended to the University for its active cooperation in arranging this year's program of the Club, and especially to President M. L. Burton for his excellent address on Thursday morning and for securing Dr. G. E. Vincent as the speaker for Friday morning.

Respectfully submitted,

B. J. Rivett
E. H. Kraus
C. B. Williams
C. L. Goodrich

Committee

REPORT OF NOMINATING COMMITTEE

For President—William Prakken, Highland Park, Mich.

Vice President—Mrs. Bessie Leach Priddy, Ypsilanti, Mich.

Member of Executive Committee—H. R. Atkinson, Battle Creek.

Signed by the Committee

A. G. Erickson, Ypsilanti

G. W. Murdock, Detroit

G. E. Myers, University

And the Secretaries of the Conferences

OFFICERS ELECTED BY THE CONFERENCES

Classical—Chairman, Frances Brown, Northwestern High School Detroit; Vice Chairman, Alicent Holt, Grand Rapids; Secretary, Dorothy Roehm, Northwestern High School, Detroit.

Modern Language—Chairman, Marie L. Jennings, Grand Rapids; Secretary, A. G. Canfield, University.

English—Chairman, Alice L. Marsh, Southwestern High School Detroit; Secretary Leila Pike, Traverse City.

Public Speaking—Chairman, H. L. Ewbank, Albion College; Secretary, E. J. Willman, Owosso.

History—Chairman,
Secretary, _____

Physics and Chemistry—Chairman, C. W. Chapman, M. A. C.; Secretary, W. N. St. Peters, University.

Mathematics—Chairman, Harold Blair, Western Normal; Secretary, Jane L. Matteson, State Normal College.

Biology—Chairman, Theodosia Hadley, Western Normal; Secretary Elizabeth Sundstrom, Western High School, Detroit.

Commercial—Chairman, J. C. Howell, Wilkins High School of Commerce, Detroit; Vice Chairman, Minnie Clark, Highland Park; Secretary, Miriam C. Barton, Cleary Business College, Ypsilanti.

Art—Chairman, Alice V. Guysi, Detroit; Secretary, Blanche R. DeWitt, Ypsilanti.

Educational Psychology—Chairman, G. L. Brown, Northern Normal; Secretary, T. S. Henry, Western Normal.

Manual Training—Chairman, Mr. MacCrae, Muskegon; Secretary—

Home Economics—Chairman Winifred S. Gettemy, M. A. C.; Secretary, Louise B. Wilson, Cass Tech., Detroit.

Physiography and Geography—Chairman, A. R. Gilpin, Northwestern High School, Detroit; Secretary, D. H. Davis, University.

Library—Chairman, Agnes Snover, Northern High School, Detroit; Secretary, Edith Thomas, University.

Administrative—Chairman, A. F. Jones, Northwestern High School, Detroit; Secretary, Emma Weitbrecht, Ann Arbor.

Music—Chairman, John Beattie,
Secretary, Mrs. Cutting, Battle Creek.

Agriculture—Chairman, W. A. Wood, Ionia; Secretary, Ben. J. Holcomb, Plymouth.

TREASURERS REPORT 1921-22

1921

RECEIPTS

Balance, as per last report, Commercial Department.....	\$	287.98
Balance, as per last report, Savings Department		192.66
March 24 Deposit dues		34.00
March 26 " "		47.00
March 29 " "		20.00
March 31 " "		190.00
March 31 " "		307.00
April 1 " "		135.00
April 1 " "		102.00
April 1 " "		246.00
April 2 " "		129.00
April 23 " "\$7.00 Ads. \$15.00		22.00
May 5 " "		10.00
May 19 " "		10.00
May 31 " ads		5.00
May 31 " sale of journals, 1920		50.00
June 1 " dues		9.00
June 8 " sale of journals, 1920		70.00
June 27 " dues		5.00
July 1 " transfer from savings department.		15.00
July 1 " dues		6.00
Sept. 10 " ads		10.00
Sept. 15 " ads		5.00
Sept. 15 " transfer from savings dept.		150.00
Sept. 20 " ads		10.00
Oct. 19 " sale of pournals, 1921		50.00
Oct. 25 " sale of journals, 1921		70.00
Total		\$2187.64

1921

DISBURSEMENTS

March 23 Check No. 529	H. J. Abbott, stamps.	\$	5.00
March 23 " " 530	H. J. Abbott, 3 stamps		9.00
March 23 " " 531	H. J. Abbott, 3 stamps		9.00
April 1 " " 532	W. B. Reeve, two addresses		100.00
April 1 " " 533	R. L. Baldwin two addresses		90.00
April 2 " " 534	W. E. Praeger pres. expenses		11.75
April 2 " " 535	L. P. Jocelyn salary		150.00
April 15 " " 536	L. P. Jocelyn pd. doorkprs.		31.85
April 22 " " 537	Ann Arbor Press printing		506.36
April 22 " " 538	University janitors, etc.		21.06
May 19 " " 539	H. J. Abbott, stamps		2.00
May 20 " " 540	Mich. Union, Ex. committee		3.75
May 20 " " 541	Jessie Gregg, ex. committee		8.34
May 20 " " 542	Lila Fyan, ex. committee		1.50
June 7 " " 543	Alice Johnson, clerk		5.95
June 7 " " 544	Marthena Drybread, clerk		2.45
June 8 " " 545	H. J. Abbott, stamps proceedings.....		20.00
June 13 " " 546	H. J. Abbott, parcel post		4.86
June 14 " " 547	Florence Rennie Admin. Con. ....		.75
June 21 " " 548	H. J. Abbott, stamps procdgns.		4.00
June 25 " " 549	Dorothy Roehm Classical Con.		4.36
June 25 " " 550	Ellen Hoffman Library Con.		2.38
June 25 " " 551	S. W. Millard Badges etc.		33.50
June 25 " " 552	R. H. Curtiss Math. Con.		4.45
June 25 " " 553	Prof. A. S. Whitney postage.		5.96

June	27	"	"	554	Office expenses for one year and proceedings expenses two years.	186.78
June	30	"	"	555	Nellie Breathwaite, clerk	5.70
July	1	"	"	556	Ann Arbor Press Prtg. for '21	479.13
Oct.	15	"	"	557	L. P. Jocelyn, salary Oct. 1	150.00
Oct.	15	"	"	558	H. J. Abbott, stamps.	2.00
Nov.	2	"	"	559	S. W. Millard, printing for Mod. Lan. Committee..	48.25
Nov.	2	"	"	560	Prof. A. G. Canfield Mod. Lan.	29.06
Dec.	12	"	"	561	H. J. Abbott, Stamps.	2.00
1922						
Jan.	4	"	"	562	O. D. Morrill, Pres. Letters.	1.40
Feb.	1	"	"	563	H. J. Abbott, stamps.	2.00
Total expenditures.						1944.65
Transfers						165.00
Balance in savings department						27.66
Balance in commercial department.						50.33
Total						\$2187.64

REPORT OF THE AUDITING COMMITTEE, MARCH 30, 1922

I have examined the books and annual financial report of Mr. L. P. Jocelyn, Secretary-Treasurer for the year of 1921-1922, and find that they are correct.

Auditing Committee,

C. S. Laszelere, chairman.

Program of General Sessions

(Admission by badge)

Officers of the Michigan Schoolmasters' Club, 1922

President—Professor J. B. Edmonson, University of Michigan.
 Vice-President—Miss Lila E. Fyan, Detroit Northeastern High School.
 Secretary—Mr. L. P. Jocelyn, Ann Arbor.
 Members of the Executive Committee—Registrar A. G. Hall, University of Michigan; Jessie S. Gregg, Kalamazoo; Professor C. S. Larzelere, Central State Normal School.

Wednesday Evening, March 29

8:00 o'clock, Eastern Standard Time
 Newberry Hall

Lecture (Illustrated), "New Light from Graeco-Roman Egypt," Professor Francis W. Kelsey, University of Michigan.

Thursday Morning, March 30

9:00 o'clock, Eastern Standard Time
 Newberry Hall

Chairman—Professor J. B. Edmonson, University of Michigan.

1. Short Business Meeting.
2. Conference. "The Problem of Character Training of High School Students." 9:00-10:45 A. M.

Speakers—President John W. Laird, Albion College.

Miss Mary E. Sweeney, Dean of Home Economics, Michigan Agricultural College.

Professor C. O. Davis, University of Michigan.

Questions and discussions directed by the Chairman.

11:00 o'clock, Eastern Standard Time
 Hill Auditorium

3. Address: First Things, President Marion L. Burton, University of Michigan.

Thursday Afternoon, March 30

4:00 o'clock, Eastern Standard Time
 Auditorium, Natural Science Building

University Lecture: What Shall We Teach as History? Professor David S. Muzzey, Columbia University, Department of History, Literary Editor of the Standard, New York.

Michigan Federation of Teachers' Clubs

3:30 o'clock, Eastern Standard Time
 Room B-2, High School

Chairman—Miss Cora M. Riggs, Grand Rapids.

1. Teachers as Leaders in Their Communities, Miss Grace Greenwood, University of Michigan.
2. Address, Dean A. S. Whitney, University of Michigan.
3. Address, Mr. E. G. Cameron, Executive Secretary, M. S. T. A.
4. Address, Principal E. L. Miller, Northern High School, Detroit.

4:00 o'clock
 Barbour Gymnasium

Gymnastic Drill by University Girls.

5:45 o'clock, Eastern Standard Time
 The Michigan Schoolmasters' Club "Speechless" Dinner
 Banquet Hall—Michigan Union

The Schoolmasters' Club dinner will be served at the Michigan Union at 5:45 o'clock. The program will be furnished by the Michigan Union Opera. As the Banquet Hall of the Union will seat only 500, the members are urged to reserve their tickets in advance, by writing the Secretary, Mr. L. P. Jocelyn, Ann Arbor, Michigan on or before March 28. Ticket \$1.25. Upon request tables will be reserved for whole schools or colleges, and Conferences. This will be a fine opportunity for reunions.

Thursday Evening, March 30

8:00 o'clock, Eastern Standard Time
 Hill Auditorium

Concert Oratorio "Creation," Haydn. Ann Arbor High School chorus
 400 voices under direction of Mr. George Oscar Bowen.
 Soloists

Mrs. William Wheeler, Soprano, University School of Music.

Mr. William Wheeler, Tenor, University School of Music.

Mr. Carl Lundgren, Basso-Cantarti, Normal College Conservatory of Music.

(Compliments of the University Musical Society. Complimentary to all members of the Schoolmasters' Club who pay their dues for 1922 in advance. Reserved seat tickets for main floor will be sent by mail to all members whose dues are in the hands of the Secretary, L. P. Jocelyn, by March 27. Tickets may also be procured at the Secretary's desk at headquarters on Wednesday or Thursday, March 29 and 30.

Friday Morning, March 31

9:30 o'clock, Eastern Standard Time
 Hill Auditorium

Chairman—Professor J. B. Edmonson, University of Michigan.

Secretary—L. P. Jocelyn, Ann Arbor.

1. Business Meeting.

Reports of the following committees of the Schoolmasters' Club, given by the Chairmen.

(1) Auditing—Professor C. S. Larzelere, Central State Normal School.

(2) Resolutions—Principal B. J. Rivett, Detroit Northwestern High School.

(3) Nominations—Superintendent A. G. Erickson, Ypsilanti.

(4) Modern Language Survey—Professor A. G. Canfield, University of Michigan.

(5) Joint Committee on University Entrance Requirements—Principal H. S. Doolittle, Calumet.

Discussion of Report: Registrar A. G. Hall, University; Professor A. H. White, University.

Recess.

11:00 o'clock

2. Address: Dr. George Vincent, New York.

Saturday, April 1

12:00 o'clock Noon
 Barbour Gymnasium

Annual Luncheon of Women's League. All Alumnae are invited to attend. Tickets, \$1.00, may be obtained from the office of the Dean of Women, and all reservations should be made by Thursday, March 30. The proceeds are to go to the University League Building Fund.

Program of Conferences

CLASSICAL INSTITUTE

Wednesday Afternoon, March 29

(Open to the Public)

Auditorium, Newberry Hall

3:30 o'clock

1. The American Excavation of a New Prehistoric Site in the Peloponnesus, (Illustrated) Dr. James P. Harland, University of Michigan.
 2. Roman and Italian Bypaths, Miss Clara J. Allison, Michigan State Normal College.
 3. Caesar's Battlefield on the Aisne: Berry au Bac in 57 B. C., in 1889, and in 1919, A. D. (Illustrated), Mr. George R. Swain, University of Michigan.
- At 8:00 P. M., Professor Kelsey addresses the Schoolmasters' Club.
See the general program.

CLASSICAL CONFERENCE

Chairman—Albert R. Crittenden, University of Michigan.

Vice-Chairman—Miss Florence B. Barnard, Saginaw High School.

Secretary—Miss Dorothy M. Roehm, Northwestern High School, Detroit.

Thursday Noon, March 30

Classical Luncheon, at 12:15, in the Parlors of the Congregational Church, followed by brief talks and a social hour. Tickets, 75 cents, can be secured at the door.

Thursday Afternoon, March 30

Auditorium, Newberry Hall

(Admission by badge)

2:30 o'clock

4. The Sword that did not Come to Michigan (Illustrated), Professor F. W. Kelsey, University of Michigan.
 5. Using the Calipers on Culture, Miss Frances J. Brown, Northwestern High School, Detroit.
 - 5a. Causes of Defective Work in Latin by College Freshmen, Dr. Adolph F. Pauli, University of Michigan.
 6. The Classical Investigation: Progress to Date, Professor W. L. Carr, Oberlin College.
- Professor Carr's report will be followed by a short interval for discussion or questions.

4:15 o'clock

Auditorium, Newberry Hall

7. University Lecture. Syracuse: The Revival of Athens in the West (Illustrated), Dean Walter Miller, University of Missouri.

Friday Afternoon, March 31

From 1:00 to 2:00 o'clock

Room 6, Basement of the Library

An exhibit of papyri and other objects of interest recently acquired for the University Collection from Egypt and the Near East by the University of Michigan Expedition for Exploration and Research.

2:00 o'clock

Auditorium, Newberry Hall

(Admission by badge)

8. The Survival of the So-Called Unfit in Beginning Latin and Caesar Miss Harriet C. Dickinson, Jackson High School.
9. Attempts to Bridge the Gaps, Miss Alicent Holt, Grand Rapids High School.
Discussion of Miss Dickinson's and Miss Holt's papers, opened by Miss Irma Anschutz, Eastern High School, Bay City.
10. French Secondary Education in the Melting-Pot, M. Marcel Clavel, Department of Romance Languages, University of Michigan.
3:00 o'clock
Election of officers of the Classical Conference.
11. Ancient and Modern Methods of Warfare (Illustrated), Professor B. L. D'Ooge, Michigan State Normal College.
4:15 o'clock
Auditorium, Newberry Hall
12. University Lecture. Sicily: The Garden Spot of the Mediterranean (Illustrated), Dean Walter Miller, University of Missouri.

MODERN LANGUAGE CONFERENCE

(Admission by badge)

Chairman—Professor C. P. Wagner, University.

Secretary—Professor A. G. Canfield, University.

Friday Afternoon, March 31

2:00 o'clock

Room 203, University Hall

1. The Status of Measurement in the Field of Romance Languages, Dr. Clifford Woody, University of Michigan.
2. Girls' Scholarships in French Lycees, Miss Kennetha W. Berry, Central Normal School.
3. The Place of Modern Languages in the High School, Superintendent F. W. Crawford, Three Rivers.
4. The Study of Foreign Languages as a Test for College Students, Professor A. G. Canfield, University of Michigan.
5. Brief Business Session.

There will be a luncheon for teachers of Modern Languages and friends, Friday at noon (service at 12:15 sharp), at the Michigan Union. Those expecting to be present will please notify C. P. Wagner, 900 Lincoln Ave., Ann Arbor, not later than Thursday. Send postcard or 'phone 1883-M.

ENGLISH CONFERENCE**Thursday Afternoon, March 30**

(Admission by badge)

1:00 o'clock

Pattengill Auditorium, High School

Chairman—Dean Roy W. Hamilton, Alma College.

Secretary—Miss Gladys Whelan, Ann Arbor.

1. Short Business Meeting.
2. The Value and Uses of Tests in English, Mr. C. C. Certain, Northwestern High School, Detroit.
Discussion led by
 - (a) Mr. G. G. Wright, Cass Technical School, Detroit.
 - (b) Miss Leila Pike, Traverse City.
3. Why High School Graduates Fail; the Remedy,
Mr. George S. Lasher, University of Michigan.
3:00 o'clock
4. Public Speaking Conference begins.

Friday Afternoon, March 31

(Admission by badge)

1:00 o'clock

1. Newspaper Writing,
Professor John R. Brumm, University of Michigan.
2. Experiments in English:
 - (a) The Problem of Supervised Study,
Superintendent L. L. Tyler, Muskegon Heights.
 - (b) A Fair Teaching Load for the English Instructor,
Miss Leila Pike, Traverse City.
 - (c) The Problem of Outside Reading,
Miss Nellie Beaumont, Owosso.
 - (d) Departmental Cooperation in English,
Miss Louise Kilbourne, Arthur Hill High School, Saginaw.
 - (e) The Fundamentals of an English Program,
Miss Mary Eaton, Grand Rapids.
3. Final Business Session.
3:00 o'clock
4. Public Speaking Conference begins.

PUBLIC SPEAKING CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

3:00 o'clock

Auditorium, High School

Chairman—Professor R. D. T. Hollister, University of Michigan.

Secretary—Miss Melba Bastedo, Battle Creek.

1. Development and Results of Public Speaking in Kalamazoo High School, Mr. C. A. Fisher, Principal Central High School, Kalamazoo.
2. The Organization of Classroom Work in Public Speaking from the English Teacher's point of view, Miss Mary Derby, Lansing.
3. To What Extent should courses in Public Speaking be developed in the Public Schools? Superintendent M. R. Keyworth, Hastings.
4. Some Things that Organized Courses in Public Speaking should give pupils in the Public Schools, Miss Lousene G. Rousseau, Western State Normal School, Kalamazoo.
5. The Coordination of Contests and Classroom Work, Mr. H. D. Hopkins, Saginaw High School.
6. Methods of Prompting Work in the High School Debating League, Mr. R. C. Ward, Principal Central High School, Mount Clemens.

Friday Afternoon, March 31

Auditorium, High School

3:00 o'clock

(Admission by badge)

7. Basic Principles in the Organization and Conduct of Auditorium Activities, Miss Florence V. Essery, Northwestern High School, Detroit.
8. Classroom Projects suitable for the Auditorium, Miss Claudia Crumpton, Hutchins Intermediate School, Detroit.
9. The Uses of the Auditorium in Smaller High Schools, Superintendent E. J. Willman, Owosso.
10. Public Speaking as a Motivating and Socializing Factor in the School and Community, Superintendent Clarence Vliet, Birmingham.

HISTORY CONFERENCE**Thursday Afternoon, March 30**

Chairman—Professor Carl E. Pray, Michigan State Normal College.

Secretary—Mildred Taylor, Highland Park.

4:00 o'clock

Auditorium, Natural Science Building

Lecture: What Shall We Teach as History? Professor David S. Muzey, Columbia University.

Friday Afternoon, March 31

(Admission by badge)

2:00 o'clock

Room C-3, High School

The Use of Standard Educational Tests in History, Mr. A. S. Barr,
Assistant Director of Instruction, Detroit.

The Causes of the Freshman Failure in History in the University,
Professor William Freeman Galpin.

Some Suggestions for a Standardization of the Material to be Studied
in a High School Course in United States History, Mr. Van Lieu
Minor, Kalamazoo.

America and Britain in the Schools, Dr. G. N. Fuller, Secretary of the
Michigan Historical Commission, Lansing.

PHYSICS AND CHEMISTRY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

1:45 o'clock

Physics Laboratory, West Lecture Room

Chairman—W. F. Lewis, Northern Normal.

Vice-Chairman—C. W. Chapman, Michigan Agricultural College.

Secretary—D. L. Rich, University.

1. Experimental Demonstrations, Dept. of Physics, University of Michigan; and others.
2. Demonstration: Determination of Fertilizing Needs in Soils, M. A. Cobb, Mt. Pleasant.
3. Pinholes, W. E. Laycock, Physics Department, M. A. C.
4. Testing of Chemistry in the Small High School, Byron S. Corbin, State Normal College.
5. The Colorimetric Method for the Determination of H ion Concentration, F. W. Fabian, Bacteriology Dept., M. A. C.
6. Chemistry in the High School, A. J. Clark, Head, Chemistry Dept., M. A. C.
7. Some of the Chemical Tools a High School Student Should Acquire, Wm. McCracken, Western State Normal.
8. The Radiophone and the High School, Chas. F. Valentine, Flint.
9. Business Meeting.

Friday Afternoon, March 31

12:15 o'clock

Physics-Chemistry Luncheon, Lane Hall, 75c.

2:00 o'clock

Symposium on Beginning Courses in Physics and in Chemistry.

- A. Report of University of Michigan committee on causes of Freshman failures.
 1. Physics, W. F. Colby, University of Michigan.
 2. Chemistry, W. G. Smeaton, University of Michigan.
- B. Report of Committee on "Standard Courses."
 1. Physics, G. I. Altenburg, Highland Park.
 2. Chemistry, Mr. M. E. Schmidt, Detroit Northern.
- C. What shall be done at present with schools and in schools possessing inadequate equipment? Discussion opened by W. N. St. Peter, University, Physics, and D. M. Lichty, University, Chemistry.

MATHEMATICS CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

2:00 o'clock

Room B, Law Building

Chairman—Jane L. Matteson, Michigan State Normal College.

Secretary—John Craig, Muskegon.

1. How to Encourage the Formation of Right Habits in First Year Algebra,
Miss Alice M. Woessner, Ann Arbor.
2. The Value of the Long Recitation Period in High School Mathematics,
Principal George W. Murdock, S. W. High School, Detroit.
3. First Year Algebra for Pupils of Varying Capacities,
Miss Selma Lindell, Flint.
4. The Segregation of Classes According to Mental Tests,
Mr. Isaac M. De Voe, Highland Park.
5. General Discussion,
Opened by Professor R. A. Wells, Michigan State Normal College.

Friday Afternoon, March 31

(Admission by badge)

1:30 o'clock

Room B, Law Building

6. Report of the Chicago Meeting of National Council of Mathematics Teachers,
Miss Orpha E. Worden, Teachers College, Detroit.
7. Specific Causes of Failure in University Work in Mathematics,
Professor M. F. Johnson, University of Michigan.
8. Discussion of Professor Rouse's Paper of last year on Causes of Failure of Students of the Engineering College,
Miss Gladys Snyder, Muskegon.
9. The Ohio Ruling,
Mr. Harold Blair, Western Normal School.
10. General Discussion,
Opened by Dean C. B. Williams, Kalamazoo College.

BIOLOGICAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

1:30 o'clock

Auditorium, Natural Science Building

Chairman—Miss Lida Rogers, Holland.

Secretary—Miss Helen B. King, Saginaw.

1. Specific Weaknesses in the Preparation of Freshmen Electing Biology,
Professor A. Franklin Shull, University of Michigan.
2. Discussion,
Mr. F. S. Vaughan, Eastern High School, Saginaw.
Miss Theodosia Hadley, Western Normal, Kalamazoo.
3. Measurement Tests in Biology—Their Value and Use,
Miss Alma Ackley, Ann Arbor.
4. Biology Tests in Highland Park and Detroit,
Name of speaker to be supplied later.

5. Report of Committee on Biology Tests,
Dr. L. H. Harvey, Western Normal, Kalamazoo.
4:00 o'clock
University Lecture, Professor David S. Muzzey, Columbia University.

Friday Afternoon, March 31

12:15 o'clock

Luncheon, Room B 100, New Science Building

2:00 o'clock

Auditorium, New Science Building
(Admission by badge)

6. The Endocrine System,
(a) The Relation of the Endocrine Glands to Body Growth and Development (Illustrated),
Theodore A. McGraw, M.D., Detroit College of Medicine.
(b) Endocrine Products in Medicine,
Louis Klein, M.D., Parke, Davis & Company, Detroit.
7. The Chemistry of the Blood,
Herbert W. Emerson, M.D., University of Michigan.

COMMERCIAL CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

2:00 o'clock

Room C-17, High School

- Chairman—T. W. De Haven, Saginaw, W. S.
Vice-Chairman—A. R. Hartwick, Nordstrum High School, Detroit.
Secretary—Miss Miriam O. Barton, Highland Park.
1. The Value of Educational Measurements in Commercial Subjects,
C. A. Courtis, Detroit.
 2. The Teaching of Marketing,
Professor C. E. Griffin.
 3. Educational Value of Machine Figuring,
Carlos Wintenmeyer.
 4. Discussion.
 5. Business.
- Commercial Luncheon 12:15 P. M., Methodist Church. Phone O. V. Adams.

ART CONFERENCE

(Admission by badge)

Friday Afternoon, March 31

2:15 o'clock

Room A, Alumni Building

- Chairman—Miss Alice V. Guysi, Detroit.
Secretary—Mrs. C. C. DeWitt, Ypsilanti.
1. What the Detroit Institute of Arts is Doing for the Children of Detroit,
Mr. Reginald Poland, Educational Secretary, Detroit Institute of Arts.
 2. The Value of Pottery as an Art Project in High School,
Mr. Albert C. Armstrong, Eastern High School, Detroit.
(Mr. Armstrong will bring examples of pottery to illustrate his subject.)
 3. The Need for Art Appreciation in the Public Schools.
General Discussion.

EDUCATIONAL PSYCHOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

2:00 o'clock

Tappan Hall Lecture Room

Chairman—Professor Charles Scott Berry, University of Michigan.

Secretary—Miss Marie I. Rasey, Detroit Teachers College.

General Subject: Psychology in Relation to the High School.

1. The Interests Underlying the Election of High School Subjects,
Assistant Dean L. J. Brouckner, Detroit Teachers College.
2. The Application of Psychological Laws and Principles to High
School Teaching,
Professor G. L. Brown, Northern State Normal.
3. The Psychology of High School Laboratory Science,
Professor Nathan A. Harvey, Michigan State Normal College.
4. Some Problems of Acceleration in High School,
Professor T. S. Henry, Western State Normal.
5. The Place of Mental Hygiene in the Preparation of High School
Teachers,
Professor E. C. Rowe, Central State Normal.
6. The Intelligence of High School Pupils,
Professor W. M. Whipple, University of Michigan.

HIGH SCHOOL LIBRARIES' CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

2:00 o'clock

Room 110, General Library

Chairman—Miss Fredericka B. Gillette, University of Michigan Library.

Secretary—Miss Agnes Snover, Northern High School, Detroit.

1. Community Libraries and their relation to High School Libraries,
Supt. L. A. Butler, Ann Arbor.
2. The Past and Present of High School Libraries,
Mrs. Ellen M. Linton, Cass Technical High School, Detroit.
3. Weakness of High School Students in Library Training,
Mr. F. L. D. Goodrich, University of Michigan Library.
4. Round Table Discussion. Leader,
Miss Nina K. Preston, University of Michigan Library.
5. Business Meeting.

Friday Afternoon, March 31

12:30 o'clock

Luncheon served in Staff Dining Room, University Library.

If you plan to attend, please notify Miss Gillette by March 27.

1:45 o'clock

Room 110, University Library

(Admission by badge)

6. History Books for a High School Library,
Professor William A. Frayer, University of Michigan.
7. A Shelf of New Books,
Miss Marie Newberry, Supervisor of Training, Public Li-
brary, Toledo, Ohio.
8. The Platoon School System of Detroit,
Miss Martha C. Pritchard, Supervising Instructor, In charge
of School Libraries, Detroit.

*** ADMINISTRATIVE TEACHERS' CONFERENCE**

(House Principals, Grade Principals, Session Room Teachers,
and all High School Principals interested)

(Admission by badge)

Thursday Afternoon, March 30

2:00 o'clock

Room B-8, High School

Chairman—W. J. Frye, Eastern High School, Detroit.

Secretary—Miss Florence Rennie, Chicago.

1. Range of Duties of High School Administrators,
Professor C. O. Davis, University of Michigan.
2. The Boy and the Girl Problem,
Professor W. D. Henderson, University of Michigan.
3. The Place of Home Economics in High School Administration,
Dean Mary E. Sweeny, Michigan Agricultural College, and
President of American Home Economics Association.

AGRICULTURAL CONFERENCE

Under Direction of Michigan Society for the Promotion
of Agricultural Education

Friday Afternoon, March 31

1:30 o'clock

Room A, Law Building

Chairman—Walter A. Wood, Ionia.

Secretary—Ben J. Holcomb, Plymouth.

President's Address, W. A. Wood, Ionia.

Partnership Between Father and Son the True Project for High
School Work,

L. R. Stanley, Benton Harbor.

Discussion, J. W. Hall, Durand.

What Must the Farmer of Tomorrow Know?

Superintendent F. P. Buck, St. Johns.

Discussion, M. E. Hath, Vicksburg.

Who is the Successful Teacher of Agriculture?

Superintendent E. J. Willman, Owosso.

Discussion, Paul Rood, Goodrich.

What Evidence should there be that the Agricultural Department
is a Center of Community Interest?

M. C. Townsend, Hastings.

Discussion, W. J. Rawson, Hillsdale.

The Relation of the Superintendent of Schools to the Agricultural
Department and other Vocational Departments,
State Supervisor E. E. Gallup.

At 5:45 o'clock the Conference will go in a body to the School-
masters' Club "Speechless" dinner and Michigan Union opera enter-
tainment at the Michigan Union, where tables have been reserved for
this group. A round table talk, led by State Supervisor E. E. Gallup,
may follow.

GEOGRAPHY AND GEOLOGY CONFERENCE

(Admission by badge)

Thursday Afternoon, March 30

2:00 o'clock

Room 217-G, Natural Science Building

Chairman—Superintendent F. W. Frostic, Wyandotte.

Secretary—Mr. A. R. Gilpin, Northwestern High School, Detroit.

The Need of a Wider View,

Prof. L. H. Wood, Western State Normal, Kalamazoo.

The Relation of Geography to Elementary Science,

Mr. D. H. Davis, University of Michigan.

Geography as a Means of Aiding Conservation,

Prof. C. O. Sauer, University of Michigan.

An Experiment in the Measurement of Method of Teaching in Geography as Conducted by Miss Una Welton, Social Science Teacher, Angell School, Detroit,

Mr. Burton A. Barns, Supervisor of Geography, Detroit.

Michigan Lakes as Recreation Centers,

Prof. I. D. Scott, University of Michigan.

Some Suggestions for Using Visual Aids in Teaching Geography. Illustrated by Slides and Motion Pictures.

Mr. Edward H. Reeder, Director of Visual Instruction, Detroit.

MANUAL TRAINING CONFERENCE

(Admission by badge)

Friday Afternoon, March 31

12:15 o'clock

Annual Vocational Luncheon at Michigan Union.

2:00 o'clock

Room C-1, High School

Chairman—George B. Frazee, Jr., Principal Vocational School, Grand Rapids.

Secretary—Mr. J. D. Bicknell, Muskegon.

1. Address: Problems of Enforcing State Labor Laws,
Name to be supplied later.
2. Relation of Manual Arts to Vocational School Work,
 - (1) View Point of a Superintendent,
W. A. Greeson, Grand Rapids.
 - (2) View Point of a Principal,
J. D. Bicknell, Muskegon.
 - (3) View Point of a Supervisor,
C. A. Wardner, Jackson.
3. Report of the Committee on Organization and Equipment of a
General Shop for Manual Training Schools,
B. E. Bedell, Detroit.

HOME ECONOMICS CONFERENCE

(Admission by badge)

Friday Afternoon, March 31

2:00 o'clock

Room B-1, High School

Chairman—Miss Winifred S. Gettemy, M. A. C.

Secretary—Louise Wilson, Cass Tech. High School, Detroit.

1. Educational Tests available in the field of Home Economics and the value and use of these,
Miss Julia Grant, Detroit.
Miss Grace MacAdams, Detroit.
2. The specific weaknesses in the high school preparation of students as revealed in the first year of College Work,
Food—Miss Osee Hughes, M. A. C.
Miss Jessie E. Richardson, Ypsilanti.
Clothing—Miss Josephine Hart, M. A. C.
Miss Ada Tucker, Hillsdale College.
General Discussion.
3. Some Experiments in Child Training at Merrill-Palmer School,
Miss Mary E. Sweeny, Dean Home Economics, M. A. C.
4. The Michigan Plan,
Ruth Freegard, State Supervisor, Home Economics.
Round Table,
Cornelia Simson, School Home Economics, Battle Creek.

MUSIC CONFERENCE

Thursday Afternoon, March 30

2:00 o'clock

University School of Music

Chairman—Mr. George Oscar Bowen, Ann Arbor.

Secretary—Miss Blanche Youngs, Cadillac.

1. Election of Officers.
2. General Round Table Discussion.
3. Concert at 8:00 o'clock.

STATE COUNCIL OF ADMINISTRATIVE WOMEN

The Value of Organization,

Miss Mary Sweeny, Dean of Home Economics, Michigan Agricultural College.

Friday Afternoon, March 31

12:30 o'clock

Luncheon at the Michigan Union. Price \$1.00

Reservations may be made with Miss Carrie Dicken, Ann Arbor.
Phone 2919 or 2841-M.

VOCATIONAL EDUCATION LUNCHEON

Agricultural, Commercial, Home Economics, Industrial and Manual Arts, Teachers and Supervisors, including teachers in part-time schools, will have a luncheon, Friday, March 31st at the Michigan Union, 3rd floor, 12:15 P. M. The purpose of the luncheon will be to organize a State Society for Vocational Education.

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Hayner, Elizabeth
Hegener, A. L.
Hill, B. E.
Holbrook, Emma M.
Isbell, W. N.
Jarrard, Erminah
King, Blanche L.
King, Ruth
Kinney, Eva M.
Knight, Jean B.
Longworth, Mary A.
Lynch, Helen
MacKenzie, Florence
McGrath, A. L.
Malone, Bertha
Miller, E. L.

Miner, Mary L.
Plumb, L. F.
Rolfe, E. C.
Russell, Adelaide
Schaible, Clara K.
Schmidt, Mrs. Marg't
Schmidt, M. E.
Schnidler, J. R.
Simpson, H. L.
Skimin, Eleanor
Smith, Florence M.
Snell Mary
Snover, Agnes
Solar, F. I.
Sutherland, Olive M.
Taft, H. O.
Tanis, J. E.
Teninga, Gertrude
Todd, S. Edith
Vernor, Edna L.
Voorheis, Zadie
Walsh, May F.
Watkins, E. E.
Wegener, Emma D.
Whyte, T. C.
Wilkinson, G. H.
Wood, Mabel L.
Wood, Mrs. Madge
Wulff, A. J.
Yokom, M. C.

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Bedell, E. L.
Beebe, Ruth
Berkaw, Margaret
Black, Isabelle M.
Bovill, John, Jr.
Bovill, Mabel
Bovill, R. V.
Brown, Frances J.
Brown, Marie L.
Burgess, L. G.
Cavanaugh, Catherine
Certain, C. C.
Chamberlain, Kath.
Cline, A. M.
Cline, Doris A.
Clough, Susanna A.
Cooper, Elsie E.
Covey, Blanche
Coyle, Harriette
Elliott, Mary I.
Essery, Florence
Evans, Monica
Flanagan, Ruth
Fraissinet, Audr  e
Fraser, H. F.

Gilpin, A. R.
Hill, Florence J.
Holmes, Mary F.
Howes, Mary F.
Hulbert, W. O.
Huston, Ruth E.
Jaehnig, May S.
Jerome, M. D.
Jones, A. F.
Jones, Laura J.
Keppel, Anna K.
Lane, Edna M. F.
MacDonald, Agnes
McGuinness, J. P.
McNally, J. V.
McRay, E. J.
Maris, B. G.
Maris, Edna B.
Merriam, Beatrice
Metcalf, Jessie
Nelson, Leila S.
Newcombe, Rachel
Norris, Nonna
Porter, J. E.
Rauch, Mrs. Edith
Remington, R. E.
Rivett, B. J.
Roehn, Dorothy
Ryman, Rachel S.
St. John, Helen M.
Seaver, Elizabeth
Sharp, Clara
Sheehan, Sarah E.
Simpson, Shirley
Sobesky, W. R.
Sparling, Mary
Terraz, Jeanne
Vyn, Clarissa
Wade, W. M.
Walker, Harriet K.
Walton, W. W.
Watson, Emily T.
Wentworth, W. H.
White, May P.
Wilson, Jean W.
Wood, F. A.
Wright, Evadne
Wyble, Verne
Wyman, Alice
Wynne, Catherine E.

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SOUTHEASTERN

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Auch, E. F.
Baisinger, B. S.
Bechtel, G. A.
Beebe, Faye
Beyer, Adele H.
Blakeney, Kittie L.

- Bogenrieder, Gertrude
 Brewer, Mary
 Carr, Henrietta
 Converse, Helen J.
 Copeland, Carrie E.
 Corns, J. H.
 Creech, May E.
 Curry, Meroe
 Curtis, Erta
 de Vries, Marie
 Douglas, Catherine
 Dow, Caroline M.
 Gardner, Lucy M.
 Haigh, Margaret
 Haymaker, Hilda
 Hendershott, Edna
 Johnson, Lyda H.
 Kehoe, Roberta J.
 Koslowsky, Elizabeth
 MacDonald, Fran. H.
 MacFarlane, Florence
 McFarlane, Janet
 McHugh, D. C.
 Martin, Rose F. N.
 Mason, Elizabeth
 Minnick, P. A.
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 Roys, H. N.
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 Shimp, H. R.
 Sisman, Elsie
 Skinner, C. T.
 Smith, O. S.
 Spafard, Myra B.
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 Sullivan, Margaret C.
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 Van Norman Marjorie
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 Hamilton, Amanda J.
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 Jones, Winnie M.
- Lauer, Marguerite
 McMillian, D. W.
 Mailhot, Elizabeth
 Marsh, Alice Louise
 Miller, L. W.
 Miller, Margaret
 Murdock, G. W.
 Paterson, Jessie
 Petry, Harriet
 Reichle, Lewis
 Robinson, Viola
 Savage, Joanna
 Scollon, Irene
 Seaver, O. G.
 Slick, R. A.
 Spicer, C. E.
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 Thomas, Anne F.
 Waterbury, Catherine
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 Wilson, Lenore S.
 Wixson, W. W.
 Woodard, W. H.
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 Brown, Loretta A.
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 Daniel, Vera
 Edmonds, G. P.
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 Harper, Susan
 Hempsted, Joanna K.
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 Hendricks, Loretta
 Hickok, D. W.
 Holmes, E. L.
 Kerns, Martha
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- Pitts, Dora H.
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 Sturm, Alice K.
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 Waples, Marcia P.
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 Wilkinson, A. O.
 Woodward, Mabel C.
 Yutzey, Homer
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 MERCE
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 Ferns, E. A.
 Lindell, Selma
 McCoy, Bessie
 McCoy, Gertrude
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 George, Beulah W.
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 Hubbell, Winifred
 Huffman, R. B.
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 Locke, J. R.
 Logan, Harriett
 Long, Agnes B.
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 McCall, Jessie
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 McKay, Jean
 Mansell, Edith
 Margah, Katherine C.
 Mickens, C. W.
 Morse, Mrs. Marie P.
 Mothersill, Anna
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 Palmer, Sadie J.
 Perkins, Margaret
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 Powell, Rose M.
 Prakken, Wm.
 Purmount, Genevieve
 Quigley, Bly
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 Sommerville, Eliza
 Stearns, Virginia
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 Swain, J. R.

- Sweitzer, Katherine
 Taylor, Ethel
 Taylor, Mildred C.
 Thomson, Evelyn E.
 Van Loon, G. E.
 Vogel, Margaret
 Waite, R. E.
 Wallin, Alice
 White, Kathleen
 Wies, Pauline E.
 Wines, Emma
HILLSDALE
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 Clark, C. B.
 Congdon, Nellie
 Detwyler, R. E.
 Kiebler, E. W.
 Mack, W. H.
 Mauck, J. W.
 O'Hanlon, Avis
 Tucker, Ada
HOLLAND
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 Rodgers, Lida
 Wickes, Gertrude
HONOR
 Stephenson, C. E.
HOWELL
 Andrews, C. W.
 Sharpe, Alma E.
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 Hawley, Sarah
 Hutchins, Ella J.
 Kantner, J. N.
 Thornton, Mrs. H. P.
 Wood, W. A.
JACKSON
 Bliss, F. L.
 Britten, Caroline E.
 Coy, Jennie M.
 Dickinson, Harriet C.
 Dorr, A. W.
 Gilliland, Gwendolen
 Jahn, Augusta M.
 King, Edith A.
 Light, E. S.
 McCulloch, G. L.
 Marsh, E. O.
 Matthews, Fred
 Meier, Alexina
 O'Dwyer, Elizabeth
 Parker, P. F.
 Sherman, Elizabeth L.
 Skillen, Elizabeth
 Smith, Syra
 Torrey, Alice M.
 Trumble, O. S.
 Wardner, C. A.
 Wilcox, Elizabeth L.
- KALAMAZOO**
 Burnett, Bess B.
 Drake, E. H.
 Fisher, C. A.
 Grable, Helen
 Gregg, Jessie S.
 Heathcote, D. J.
 Holmes, Albert
 Milham, Gertrude E.
 Minor, Van Lieu
 Mott, J. B.
 Nevins, A. P.
 Phillips, Bernice
 Rosewarne, Nellie
 Wheeler, W. W.
KALAMAZOO COLL.
 Balch, E. A.
 Praeger, W. E.
 Williams, C. B.
KALAMAZOO, WEST-
ERN NORMAL
 Arbour, Belle
 Blair, Harold
 Burnham, Ernest
 Burnham, Margaret
 Burnham, Smith
 Cain, W. H.
 Ellsworth, F. E.
 Everett, J. P.
 Fox, J. E.
 Hadley, Theodosia
 Harvey, L. H.
 Henry, T. S.
 Hoekje, J. C.
 McCracken, Wm.
 Pennell, E. D.
 Rood, Paul
 Sprau, George
 Tamin, Marion
 Waldo, D. B.
 Wood, L. H.
KALKASKA
 Grant, L.
KINDE
 Brown, W. C.
 Henry, Bernice
LAINGSBURG
 Du Vall, L. E.
LAKE ODESSA
 Childs, J. R.
LANSING
 Bishop, E. J.
 Bishop, W. T.
 Boyer, Eleanore
 Campbell, Ella M.
 Campbell, Mary E.
 Derby, Mary
 Freegard, Ruth
 Gallup, E. E.
- Goodrich, C. L.
 Goodrich, Mrs. C. L.
 Gretzinger, Caroline
 Hall, E. M.
 Hutzler, Melita G.
 Le Furge, C. E.
 Leonhard, F. D.
 Lyons, Evelyn R.
 Smith, K. G.
 Turner, Olive G.
LAPEER
 Malasky, E. A.
LINDEN
 Burr, C. J.
MANCHESTER
 Jacob, Gottlieb
MANISTEE
 Carland, Mabel
MARINE CITY
 Wheaton, Carl
MARION
 Harris, Cecil
MARLETTE
 Wickert, H. W.
MARQUETTE
 Anderson, S. R.
MARQUETTE,
NORTH'N NORMAL
 Brown, G. L.
 Brown, Mrs. G. L.
 Kaye, J. H.
 Lewis, W. F.
 Spooner, C. C.
MARSHALL
 Conklin, E. M.
 Hammond, Percy
MARYSVILLE
 Riddering, A. A.
MASON
 Kennedy, J. E.
 Seiffer, Ruth
MIDDLEVILLE
 Perry, Esther M.
MIDLAND
 Estabrook, D. C. shie
 McLachlan, Della
MILAN
 Laing, H. E.
 Tape, H. A.
MONROE
 Button, H. R.
 Cantrick, G. T.
 Columba, Sister M.
 De Pue, A. R.
 Gilday, Selma
 Hiller, C. H.
 Hiller, Aleta
 Hoekje, Emma
 Immaculata, Sister M.
 Iler, H. D.

- Paula, Sister M.
Smith, Mary K.
Spencer, D. S.
Swift, Iva I.
Thompson, Helen
Virginia, Sister Marie
Wagner, Martha
- MT. CLEMENS
Bailey, Ruth L.
Brown, I. W.
Browning, Harold
Camburn, Bessie
Covell, M. Elizabeth
Daeubler, Hulda C.
Fast, L. W.
Hannan, Bernice
Hellenthal, Gertrude
Howell, Blanche
Lee, W. L.
Neale, Mrs. Hugh
Rowan, G. F.
Ward, R. W.
- MT. PLEASANT
Ferguson, Floyd
McKenzie, Lucille
- MT. PLEASANT,
CENTRAL NORMAL
Brooks, K. P.
Fox, Karolena M.
Larzelere, C. S.
Pearce, W. H.
Warriner, E. C.
- MUSKEGON
Bicknell, J. D.
Craig, J. A.
Davis, Grace A.
Fuller, E. G.
McLouth, C. D.
Vesey, Marion
- MUSKEGON HTS.
Brown, Alice
Tyler, L. L.
Weir, May
- NEGAUNEE
Taper, T. A.
- NEWBERRY
Gulick, R. J.
Pullen, D. F.
- NEW TROY
Hickok, R. A.
- NILES
Allen, Hildah L.
Andres, Wildarine
Hobbs, Adelia
Lardner, Ellen
Zabel, W. J.
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Lee, L. B.
- OBERLIN, OHIO
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Nelson, Esther E.
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Harrington, E. Nettie
- OTSEGO
Johnson, C. R.
Nevins, A. N.
Vedder, Almon
- OWOSSO
Beaumont, Nellie
Brown, Henrietta
Jenney, Blanche
Linton, Robert
Reid, E. S.
Tuck, C. C.
Willman, E. J.
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Bishop, Elizabeth L.
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Jeffers, F. A.
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Hardwood, D. B.
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Smith, G. A.
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Travis, Ora
Voorheis, H. R.
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Meade, L. F.
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Langdon, J. W.
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Parsons, Maude
Pitt, N. J.
Rauch, M. B.
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Steele, Harold
Vaughan, F. S.
Warner, W. W.
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Willoughby, G. A.
- ST CLAIR
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Misenar, O. M.

- ST. JOHNS
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 Cross, Sherman
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 Congdon, W. H.
 Cooley, M. E.
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 Denton, W. W.
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 Eich, Louis
 Field, Peter
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 Finney, Mrs. B. A.
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 Gaiss, A. J.
 Gillette, Fredericka
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 Humphreys, W. R.
 Immel, R. K.
 Jackson, G. L.
 Jobin, A. J.
 Jordan, Myra B.
 Karpinski, L. C.
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 Leverett Frank
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 Myers, G. E.
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 McClintic, Bess
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Held in Ann Arbor, March 29-30. 1923

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TABLE OF CONTENTS

	PAGE
Officers of the Club, 1886-1923.....	3
" " " " 1923-	4
The Place of Latin in the High School..... <i>G. E. Myers</i>	7
Endocrin Factors in Human Development and Behavior... <i>W. E. Key</i>	13
Plea for Avocational Education..... <i>J. E. Rogers</i>	25
Student Assistants in a High School Library..... <i>E. A. King</i>	32
Science Books for High School Libraries..... <i>B. J. Rivett</i>	35
Synopsis of Business Meeting.....	39
Report of Committee on Investigations of the Field of Secondary Education.....	40
Program of the 1923 Meeting.....	47
Members of the Club 1923.....	61
Advertisements.....	72

Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-EIGHTH MEETING, HELD AT
ANN ARBOR, MARCH, 29-30, 1923

EDITED BY THE SECRETARY

THE PLACE OF LATIN IN THE HIGH SCHOOL

GEORGE E. MYERS, PROFESSOR OF VOCATIONAL EDUCATION,
UNIVERSITY OF MICHIGAN

At the very outset it should be recognized that efforts to restore Latin to its former place in the high school will be fruitless. Because a subject has been an extremely valuable means of education in the past is not sufficient reason why it should maintain the same position in the curriculum indefinitely. Many a useful social institution, the craft guilds for example, has been crowded out of existence or been obliged to change radically its character and purposes because of changing social and industrial conditions. The place of Latin in the high school of to-day must be determined solely by the service it can render to the society of to-day and tomorrow. Its glorious past can not save it any more than the glorious past of University Hall can save it from the forces that make for progress.

Our problem, then, is to find out, as nearly as possible, what service the study of Latin is capable of rendering to present-day society.

First let us note briefly some changes within the last generation that affect our problem.

Approximately ten times as many boys and girls are attending high schools in the United States to-day as in 1890. Obviously our high schools are drawing enormously from levels of ability and scholastic interest that were but little represented a generation ago.

Again, changes in our industrial system have intensified old or given rise to new problems of great public interest. The city, with all of its unsolved social, civic, economic, and political questions is the product of modern industrialism. State and national affairs bristle with similar problems growing out of the new industrial system. Becoming a good citizen has developed into a more complicated and difficult task than it was even a generation ago. Besides, public attention has been called to this task to an extent undreamed of in my high school days.

Also, our knowledge of health conditions, of what is essential to the good health of the individual and of the community and of improving health has increased. Along with this has come a greater appreciation of public responsibility for individual health, as a means of community protection.

These and other changes, which there is not time to discuss, have had a profound effect upon the high school curriculum. The sciences have been given a far more prominent place; greater emphasis has been placed upon music, art and especially the social studies; physical education, industrial arts, household arts, and business subjects have come in; and with the more varied curriculum the pupil has been given greater freedom of election by courses and by subjects.

Back of these changes in curriculum has been a lessening of emphasis upon the disciplinary conception of education and an increase of emphasis upon the conception of education as adjustment of the individual to his environment. We are thinking less to-day than formerly of education as a means of adding to one's intellectual power, and more of it as a means of helping one find and fill his place in our present-day complex social organization.

Latin is not the only subject that has felt or is now feeling the influence of the changed conditions. With the present activity in educational thinking, no subject can long escape a challenge of its worth-while-ness; nor can any subject long maintain an important place in the high school curriculum on any other basis than that of giving value received for the time spent upon it. This will be appreciated more in the future than it is to-day for the reason that better means of measuring educational values are being developed. It is quite possible that some of the newer subjects that have come into popularity at the expense of Latin will suffer a worse fate when adequate measuring devices are applied to them.

The question, then, that confronts us is "What are the values derived from the study of Latin that will determine its place in a high school curriculum adapted to present-day conditions and needs?" In answer to this question we must have something much more definite than the age-old statement that it disciplines and strengthens the mind. Nor can we be satisfied here with that familiar figure of speech in which the mind is referred to as accumulating enriching deposits of culture from the studies pursued, just as the valley of the Nile is enriched by deposits from its annual floods.

Something more specific than mental strength or even than much abused culture is necessary. In fact our question is that fundamental educational question: "What carries over from the study of a school subject into the student's later experiences?"

It is not my purpose to attempt to present any new answer to this question but to bring before you an answer worked out by others, with which some of you are no doubt familiar, that seems to me the most satisfactory yet presented, and to point out some of the bearings of this answer upon our problem.

1. There are certain elements in the subject studied that will be encountered by the pupil in his later experiences. Familiarity with these elements will make the later experiences easier for him. New situations which contain these elements will not be entirely new and strange. For example, the study of English grammar gives the pupil certain language elements that are encountered in one form or another in the daily experiences of all of us.

2. Methods of procedure are developed which carry over and are used in meeting new situations later. The methods of procedure in solving a problem in geometry — picking out carefully just what is given, noting what is to be found, or the goal towards which one is working, searching for and taking one by one the steps leading from what is given to what is to be found — are not very different from the methods of procedure used by the successful business or professional man every day.

3. Habits, ideals and attitudes of mind are acquired that carry over and affect one's behavior in the situations of later life. For example, in community civics, if well taught, the pupil forms the habit of noting in the daily paper items of civic importance, he acquires an ideal of personal civic responsibility, and he develops an open-minded attitude towards industrial and social problems of his community.

4. Tastes and appreciations are developed that carry over and affect one's reactions to new situations in later life. Of course music, drawing, industrial arts, and household arts must be included in the list of subjects that make large contributions in this respect.

Obviously high school subjects are not equally valuable in all four of these respects. One is richer in elements common to later experiences; another is richer in capacity for developing good methods of procedure; another may be rich in two or three respects, and so on. It must also be recognized that the same subject may contribute quite differently to the lives of different pupils, and that the contribution of a subject to the life of any pupil depends upon how it is taught.

What do we find when we attempt to measure Latin by this standard of values? I personally, find, first of all, that the attempt should be made by one who is more familiar with Latin than I am at this time. Neverthe-

less certain things stand out rather clearly and you who are in daily contact with the language may be able to supplement these things.

The elements in Latin which the student will find common to his later experiences include word-roots, prefixes, suffixes, phrases, and references to Roman mythology, history and literature. His knowledge of Latin will help him to understand better the English he encounters, whether in history literature, science or some other field, for the reason that the English contains these same elements to a greater or less extent.

As to acquisition of systematic methods of procedure through study of Latin there can be no question when the subject is well taught. The student is obliged to analyze the difficult sentence into its parts, just as later he will be obliged to analyze real situations. He must develop some method of procedure in memorizing the meaning of words, and selecting the most suitable word from two or more that might be used. In order to make a complete list of methods of procedure that carry over one needs to analyze, into its various parts, the complicated process of translating Latin and then determine what methods that have later applications in life are used in carrying through each part of the process.

The study of Latin has long been considered a valuable means of acquiring desirable habits, ideals and mental attitudes. To quote from the preliminary report of the Advisory Committee of the American Classical League: "Among these are habits of sustained attention, accuracy, orderly procedure, and thoroughness; and certain general attitudes such as the tendency to neglect distracting and irrelevant elements." To this list might be added, among others, the habit of discrimination in the use of words.

In the matter of appreciations the study of Latin in high school appears to make only a moderate contribution. The more advanced Latin of the college is no doubt richer in this respect. However, even from high school Latin some appreciation of Roman civilization and culture, of Roman literature and art, and of the significance of these for present-day civilization are obtained, although the value of these appreciations alone to the average high school student of Latin is not sufficient to justify the teaching of the subject.

The above presentation of the values derived from the study of Latin is necessarily brief and incomplete. It needs to be checked and supplemented by the results of such studies as those proposed a couple of years ago by the Advisory Committee of the American Classical League. But it is sufficient to indicate the method that seems to me essential to the solution of our problem.

It is not enough, however, to make a list of the values derived from the study of Latin. It is necessary to know to what *degree* the different values are realized as Latin is now taught and whether they may not be better realized by better methods of teaching. It must be ascertained, also, whether the same values can be realized from other subjects with less ex-

penditure of time and energy. Otherwise we shall not be able to justify the present place of Latin in the high school, to say nothing of winning for it a more important position. Furthermore it must be shown *when* each value can be realized to best advantage. For example, an investigation made by W. L. Carr, of Oberlin College and one now in progress by E. L. Thorndike of Teachers College both indicate that first year Latin has a marked effect upon the English vocabulary of students. Whether second year Latin is equally valuable remains to be determined. Data are extremely meagre as to when in the study of Latin the habits, ideals, mental attitudes and appreciations already discussed are most readily acquired.

Who should study Latin and who should not also deserves careful investigation. With the flood of students pouring into our high schools to-day it is quite as true that, unpopular as the subject is, many enter Latin classes who should not be there as it is that many fail to enter who should be there. Miss Newcomb, in a study conducted in more than one hundred high schools and recently summarized in *School and Society*, shows "that in some schools boys and girls are allowed to begin Latin when their ability to read and understand the English language is less than that of the average child of nine years," that "actually twenty-one percent of all Latin pupils who took the test had almost no knowledge of the fundamentals of English grammar before they began their study of Latin" and that "sitting side by side in the same Latin classes are students whose mental ages range from ten to seventeen years." Is it any wonder that Latin is unpopular under such conditions? Some better method must be developed for selecting the pupils who enter our high school Latin classes.

To summarize: That Latin has and will continue to have an important place in the high school there can be no doubt. That place remains to be determined. It will be determined not by its past glories but by the service Latin renders to present-day society. That service consists in giving the student language elements that he will encounter again and again in the later experiences of life; in helping him to acquire useful methods of procedure in meeting situations; in contributing to the development of habits, ideals, and mental attitudes that will be of advantage to the student later, and in developing his appreciation of Roman culture and its contribution to present-day civilization. In determining the place of Latin it is not enough to know that each of these values is realized from its study: we need to know, also, in what degree each is realized; by what methods they are best realized; whether there is any other subject from which each may be realized to an equal degree with less expenditure of time and effort, and what part of the Latin course contributes most to the realization of each. We need to know, further, by other means than by trial and error, what type of student should take Latin and what type should not take it.

While our problem remains unsolved, if its real nature has been made clearer or if any light has been thrown upon the methods by which progress

in its solution may be made, the purpose of this paper has been accomplished. The most hopeful thing in the entire situation to-day is that stupendous investigation now in progress, fostered by the American Classical League, of which the studies by Thorndike and Miss Newcomb, referred to above, are parts. It is only by such investigations as these that answers can be found to the questions raised in this paper — questions that are fundamental in determining the place of Latin in the high school.

ENDOCRINE FACTORS IN HUMAN DEVELOPMENT
AND BEHAVIOR

WILHELMINE E. KEY, BATTLE CREEK

It is perhaps only human that, as educators, we too, seek the inclusive, universal formula which shall insure social effectiveness. This quest has not grown easier with the years. Mistletoe and woundwort, yarrow and valerian, each in its turn, has enjoyed the reputation of being a panacea for human ills. Emancipation from such beliefs has meant only a transfer of allegiance to the Allmacht of teeth or tonsils to work our weal or woe. The search in its essence is ever the same, whether for the specific, or the more modern chemical formula which shall express that specific.

Today, the endocrines have the center of the stage. If we read such a book as Berman's "The Glands Regulating Personality" or even the more moderate endocrine enthusiasts, we may be almost, if not quite convinced that the whole story of our development and destiny is the story of the activity of the endocrines; that all our successes and our failures may be traced to the overtime work, or the soldiering of these long-neglected portions of our anatomy. They, and not the creative intelligence, nor the moral sense, constitute the hierarchy to which ultimate appeal must be made in our efforts toward perfection. To quote Berman: "We may now look forward to a real future for mankind, because we have before us the beginnings of a chemistry of human nature." "The internal secretion formula of the individual may, in the future, constitute his measurement which will place him accurately in the social system." So, again, we find ourselves within hail of the all-inclusive formula.

But far from shedding light which shall simplify pedagogical procedure, the astonishing and novel revelations which the study of these organs has thus far yielded impress us with the enormous complexity of their problems. Already the literature of the subject totals thousands of papers, and so close and brilliant a student as Dr. Barker says "The progress of research in this domain has been so rapid that no single person can keep pace with its strides." To give a clear and comprehensive account of them in the time allotted would require the qualifications of the negro preacher. He was introduced to his hearers, as you may remember, in these words: "He knows the unknowable, he can 'spress the inexpressible, and he will now proceed to onscrew the inscrutable."

While an endocrine function has been ascribed to many organs of the body, the principal ones, those best understood, are seven in number. They are: 1, the thyroid; 2, the parathyroids; 3, the pituitary; 4, the pineal body; 5, the suprarenals, consisting of (a), the medulla or chromaffin portion, and (b), the cortex, or interrenal portion; 6, the islands of Langerhans of the pancreas; and 7, the interstitial tissue of the gonads (ovaries and testicles), or so-called puberty gland. Each yields a secretion which, distributed through the blood, exerts important chemical influences upon other, more or less distant organs and tissues. The mode of this influencing is conceived of as taking place in two possible ways, either directly, the secretion being conveyed by the blood stream, or indirectly, the effect being transmitted by the automatic nervous system, which the secretions sensitize. When they act directly, they may determine the way in which the substances in the terminal cells are utilized, or they may supply substances which are wrought into the structure of these terminal cells. When they act indirectly, they may through stimulation or inhibition, greatly modify the action of the secretory and excretory organs of the body and of the involuntary musculature of the various organ systems. Furthermore, they affect profoundly the physiologic processes which run parallel to certain psychic processes. Examples of these modes of activation will be given later.

The lines of study which have yielded us our present knowledge are mainly two. They are: 1, Extirpation and feeding experiments with lower animals, as when extirpation of the thyroid is found to hinder metamorphosis in the amphibia, the process being reinstated with the subsequent feeding of thyroid. 2, Observations on the effect of disease on one or more of these glands in man, which have resulted in under-or over-functioning. Thus clinical findings show that degeneration of the pituitary is followed by infantilism, under-functioning of the thyroid leads to cretinism and myxedema, over-functioning, to exophthalmia.

That these secretions (or incretions) are of great importance in the development of the individual both during embryonic life, and in the further evolution to the climax of his powers, is now a generally accepted view. Biologically considered, a developed human being, like all higher organisms, may be regarded as the resultant of a long series of reactions between the fertilized ovum and its environment. The germinal type or genotype, reacting with the surroundings, becomes the phenotype, in the case of human beings, the realized person. In this developmental process, hormonal substances, derived from the endocrine organs, are of prime importance. The functioning of these organs during development depends in part, on their genotypic derivation, and in part, on the modifying influences exerted on these glands from the environmental side. We get an illustration of this double dependence from the administration of iodine to expectant mothers. In regions where goitre is endemic as a result of iodine deficiency, normal

functioning of the thyroid may be insured in children through such administration.

From the results obtained to date, it seems probable that further studies of endocrine activities during development will yield a clearer understanding of the origin of racial peculiarities, an explanation of normal constitutional types, which eventuate in the wide range of personalities within the race, as well as those strange freaks of human composition, which give us our giants and dwarfs, our bearded ladies and ape men. Thus the general dimensions as well as the proportions of the body, the development, not only of the skeleton, but also the softer parts, structural details of bone, teeth, nails, hair, skin; and in the sphere of the mind, intelligence and emotional control, appear to be conditioned on the functioning of these glands.

After the fullness of our powers has been reached, through the interaction of a long series of reactions, the reverse processes gradually set in. Hair and teeth fall out, the stature lessens, metabolic processes become retarded, ambition subsides along with endurance. That is, we grow old, and here again, may be traced concurrent changes in the endocrines. Moreover, the various organs and powers age at different rates, our eyes grow dim while our hair remains luxuriant, physical rotundity or cardiac dysfunction compels the body to lag far behind the dictates of the alert mind. In this increasing lack of balance, the endocrines no doubt play a role of large responsibility. So these incertions control mental and physical growth, and the metabolic processes of fundamental importance. A derangement of their function, causing insufficiency or excess, upsets the entire equilibrium of the body with profound effects on the salient physical and mental traits.

It was Theophile de Bordeu, a famous physician of Paris, who in the middle of the eighteenth century, hit upon the idea of a gland secretion into the blood. Working with the high-power microscope, he made researches into the cellular structure of organs and formulated a conception of sexual secretions absorbed into the blood and settling the male or female trend of the organism. He thus anticipated the modern doctrine on the subject. Following this came observations on the relation of the suprarenal bodies to pigmentation in Addison's Disease, but only slight advance was made in knowledge until the latter part of the last century, when the thyroid became the center of interest.

The absence of the thyroid in cretinous idiots of the Alps had been known for some time, when in 1873, a similar condition in adult women, was described and traced to a diseased condition of the thyroid. The therapeutic effects of injecting thyroid juice into the blood, and the production of myxedema by the removal of this gland in monkeys led to a rapid crystallization of ideas regarding its function. Shortly after this the relation of obesity and giantism to the pituitary came to be much discussed. Acromegaly (enlargement of the extremities) was put down as due to the over-

action of the pituitary, and correlated with the great size of gorillas which also have an excess of pituitary in their systems.

The thyroid is the great controller of the speed of living. Its contribution may be illustrated by the two extremes of condition in myxedema and exophthalmic goitre. Without it, the brain becomes dull and stupid; with it in excess, life may become exquisitely tense and dramatic. Its essential element is thyroxin, first isolated by Kandall of the Mayo Foundation. It affects the rate at which the chemical reactions take place in the body. This it may do by direct hormonal influences on the processes of combustion within the body cells, or indirectly through hormonal action on an hypothetic metabolism-regulating center, situated in the interbrain.

Thyroxin has made possible the quantitative determination of the evolution of energy in the body. There is for every individual, a constant, the metabolic rate, or combustion rate, a reading of the rate at which cells are consuming oxygen for the production of heat. Less than a grain of thyroxin more than doubles the energy production in a unit of time.

Of the many manifestations of its influence, perhaps the alternations of the hyper- with the hypothyreotic condition are the most interesting. These are the people who for days, or weeks or months live in a heaven of exaltation, driven to be continually on the go, only to descend into the slough of despond, with headache, fatigue, lack of appetite for food or activity. Then unaccountably energetic gayety again activates the whole nature, until the next "slump" occurs. The depression may go as far as melancholia, the stimulated state as far as mania, when there is cyclic insanity.

The heavy incidence of simple goitre in certain geographical regions, has long been noted. But it is only recently that, acting on the knowledge that it is an iodine deficiency disease, measures have been taken to prevent it. Simple goitre is widely distributed, being found in the Alps, the entire Himalaya district, most of the Andes, and in North America, in the region of the Great Lakes, the St. Lawrence Basin and in the northwest Pacific region. It is about six times as frequent in girls as in boys. The researches of Marine and Kendall established that iodine exists in the thyroid in both the active and the inactive form, the latter passing into the former, with the production of the hormone. As soon as the store falls below 0.1%, changes begin which can be prevented by the administration of exceedingly small quantities either through inhalation, external or internal administration.

In April, 1917, Dr. O. P. Kimball began the treatment of girls from the 5th to the 12th grades in the public schools of Akron, Ohio. This consisted of 2 gm. of sodium iodid, given in 0.2 gm. doses daily for 10 consecutive days, repeated each spring and autumn. The treatment was continued for the ensuing three years, and Dr. Kimball gives a report including 2,305 pupils not taking treatment, as compared with 2,190 taking treatment. Comparison of these two groups brings out striking differences. Of those who were normal on first examination, and did not take iodine, 347 or 27.6%

later showed enlargements. Of those with slightly enlarged thyroids and not taking iodine, 127 or 13.3% showed further enlargement; of those taking, only 3 or .3% underwent further enlargement. Of the group with small goitres, taking iodine, 659 or 57.8% returned to normal; of those not taking iodine at school, 134 or 13.9% returned to normal. Thus we see that the treatment is effective both in preventing enlargements and decreasing the size of existing enlargements. As to possible ill effects of the treatment, there were no cases of exophthalmic goitre as a result of the treatment, and only 11 cases of iodid rash, 6 of which were so mild that the girls did not stop treatment, and in 5, the rash cleared up promptly when the iodid was stopped.

Dr. Kimball holds that the prevention of simple goitre in the adolescent period should be a public health measure under state, county, or municipal control. Existing systems of organization are sufficient to handle all the details without additional aid or expense. Education should accompany treatment so that after leaving school, treatment could be continued when necessary. He estimates that in this section the maximum of prevention coupled with the minimum of effort would be obtained by the administration of iodine between the ages of 11 and 17 years.

Regarding the relation to delinquency and defect, Dr. Kimball has written me that in Akron a very large percentage of the girls who had large goitres were on the delinquent list. Still he has never been able to draw any definite conclusion because many of the girls were on the list before they developed goitre. He has though "a very definite impression that simple goitre and especially the large congenital goitre must be considered one of the important causes of delinquency." Thus far there are no data to show improvement in mentality because of treatment.

This form of treatment has now been extended to other Ohio cities, and in this State, surveys have been made in Iron Mountain, Jonesville and Marquette with a view to inaugurating systems of treatment. A part of the plan is a treatment of the water supply with one part of sodium iodid to a million parts of water. Similar measures are now under way in the schools of Zurich, Switzerland. The extraordinary results give promise of the closing, a few generations hence, of the chapters on endemic goitre and cretinism in every civilized nation in the world.

Two principal substances have been isolated from the pituitary. They are tethelin and pituitrin. The former, when fed to animals, stimulates their growth in a way which points to the control of the development of bone, connective and supporting tissues generally. Pituitrin has many effects, but in general it appears to control the tone of the tissues, with secondary effects on the sex glands. The pituitary occupies a position of vital importance in the bodily economy as is indicated by the fatal effects following extirpation or disease. But it is by no means well understood and we must content ourselves with instancing generally accepted pictures that stand for carrying de-

grees of dysfunction. The classical type of the hypopituitic is the semi-hibernating, obese person, with fat distributed everywhere, but especially in the lower abdomen and lower extremities. Mentally, they are slow and dull, sexually inactive, often impotent. We may contrast with this, the individual blessed with a large pituitary, "the long, lean individual, with a tendency to high blood pressure and sexual trends, great mental activity, initiative, irritability and endurance." Thus the thyroid and the pituitary both have great influence on growth and differentiation of tissues. Fatigability and inability to initiate effort result when there is destruction or insufficiency for one reason or another. As such, they stand in close relation to the suprarenals, the glands of emergency effort.

The suprarenals are sometimes called the glands of combat and fight. If a sensory nerve be stimulated or signs of rage evoked in an animal, extra epinephrin can be demonstrated as circulating in the blood. Its concentration in the blood is normally one part in twenty million, while there is about one hundred times as much stored in the gland as a reserve. Pain and excitement, especially fear and rage bring about its discharge into the blood, and with it a tremendous heightening of nervous tone. Nerve cells become more sensitive to stimuli, more sugar is poured into the blood from the liver and more red corpuscles from the liver and spleen. The heart beats more strongly, the senses are more acute, and the brain works more quickly.

As the glands of acute stress and strain, they are probably called upon to function more heavily in modern life than formerly. Concomitantly with their exhaustion we may have the array of symptoms comprised under the term neurasthenia. Functional hypoadrenia due to fatigue and prolonged emotional disturbance is thought to have played an important role in the production of war-neuroses. The converse of insufficiency produces in the middle-aged, high blood pressure, great capacity for work, and is found to be associated with hypertrophy of the cortex. The extremes of this condition sometimes occur in women as illustrated in virilism and hirsutism, where we find mannish behavior, deepened voice, superior bodily strength, the male type of hair-distribution, even to baldness and excessive growths of hair on the face.

Manifestly the suprarenals have played a significant role in animal evolution. Their secretions are directly serviceable in making the organism more efficient in the struggle which fear or rage or pain may entail. They thus furnish the most powerful known stimulus to supreme exertion. The animal which with increased suprarenal secretion can best muster its energies, can best call forth sugar to supply its laboring muscles, can best lessen fatigue, and so can best make the necessary run or fight for life, is most likely to survive. Survival, in its turn, means the likelihood of handing on its superior mechanism to succeeding generations.

The parathyroids are among the glands that are still on the doubtful list as regards their exact function, although the profound disturbances follow-

ing their excision point to their great importance. They were formerly thought to regulate calcium metabolism, but failure of this theory to account for experimentally determined facts has led to its abandonment in favor of the guanidin intoxication theory. This theory would explain the occurrence of idiopathic tetany in human subjects. The slow progressive decay of these glands is not followed by tetany, but by metabolic disturbances such as the wasting of fat and muscle and the impairment of the enamel of the teeth.

The evidence of glandular function of the pineal body too, is much less definite than for the thyroid, the pituitary and the suprarenals. It is most frequently regarded as a functionless vestige; important as an unpaired eye in lower animals, it may still have a regulatory action on our susceptibility to light and its effect on sex and brain. The literature gives instances of peculiar abnormalities of growth in young children due to tumors in the pineal region. A boy was brought to the German neurologist, Von Hochwart, who up to five years of age showed normal size, intelligence and interests. At that age, he rapidly assumed the measurements of a boy of twelve or fourteen. His voice became low-pitched, he was sexually and mentally mature, asking many questions concerning the immortality of the soul and life after death. Cases of this type have been duplicated and suggested the feeding of pineal extract to morons in order to induce further development. The results of these experiments have thus far been contradictory.

Insulin, the secretion of the islands of Langerhans of the pancreas, has lately aroused great interest as a cure for diabetes mellitus. Insufficiency of this secretion leads to a disturbance of carbohydrate metabolism manifesting itself in lessened sugar-tolerance, with associated disturbances of fat and protein metabolism.

Insulin was first isolated by Dr. Banting of the University of Toronto. The Battle Creek Sanitarium is one of the institutions now co-operating in the testing out of its efficacy. Its administration has given quick relief and indications for permanent cure of this dread, insidious disease. Those workers who hold to a belief in the pluriglandular origin of diabetes, due to the plugiglandular control of carbohydrate metabolism with a little understood involvement of the sympathetic nervous system, regard the final complete success of insulin as a cure as problematical.

Some of the most revolutionary effects in our thinking and practice are promised by our new theories of sex-determination. Among the initiated it is no longer permitted to speak of men and women, youths and maidens, but only of sexual majorities. Sex nowadays is defined in terms of internal secretions., the sissy and the tomboy are to be expressed quantitatively as a predominance of female or male characters, depending on the functioning of the interstitial tissues of the gonads.

Experiments with transplanted sex glands, with sex-gland extracts, and observation of the effects of infusions of the male-type blood stream into a female body, such as occurs in nature in Free Martin cattle and human herm-

aphrodites, indicate a gross chemical difference between the respective determiners of maleness and femaleness. Sex differences thus become quantitative and conditioned on the effect of two diverse chemical systems on the life cycle. The physical manifestations of masculine glandular activity take the form of pitch of voice, skin texture, shape and weight of bones, etc. It is thus bound up with specific influences on the whole soma, increasing the activity of growth and so modifying the metabolism of muscle and nerve, that not only the body but the cast of mind is profoundly affected. In the opposite sex, we have, on the contrary, less active and more uneven metabolism, less physical strength and inferior adaptibility to some kinds of work, related to specialization in order to furnish intermaternal environment for the young. Other glands are of course concerned, and the quantitative strength of the complex will determine the set of the organism in one direction or the other.

We now recognize the existence of numerous sex intergrades. Psychologists have described whole series of such intergrades ranging from the typical feminine to the masculine woman, and from the typically masculine to the feminoid man, each with a characteristic reaction to the fundamental problems of life and sex. We glimpse far-reaching effects of this new conception on social organization and educational practice, when we realize that the conformity demanded by convention to arbitrary standards of sex reaction have resulted in emotional conflict which, especially on the part of woman, has led to the search for new channels of activity. Such impulses may stop at erotic fancy and day dreaming, or going further, result in a definite psycholis; on the other hand, they may find an outlet in religious feeling or reach out to envelop all mankind, eventuating in a life of wide service. Homosexual fixations established in college or among those in similar lines of work, interfere with the natural outlet of the sex interest, and result in further racial loss. There is here a wide field for the school, not only in the recognition of abnormal fixations and their treatment by appropriate means, but the organization of a definite program which shall condition the emotional reaction of the individual with a view to securing the finest type of race survival.

We come now to the question of the subtle interaction of all these glands, through mutual stimulation and inhibition, with their total controlling effect on the physical and mental processes and their determining influence on the personality. This is the field in which, according to the more careful workers, we encounter the maximum of fiction and the minimum of fact. One of them thus presents the mathematics of the problem: Postulating six conditions for each gland, that is normality, hyperfunction, hypofunction, dysfunction, dysfunction plus hypofunction and dysfunction plus hyperfunction, we have for the nine glands claimed by the most enthusiastic, the possible number of combinations, is six raised to the ninth power, or 10,077,696. Or if this is too appalling, we may, by decreasing the number of endocrines to six, re-

duce the number of possible combinations to 46,655. To what extent any of these combinations may be modified through vicarious activity, no one at present, can give even an intelligent guess. Very few have been recognized clinically, although practically all workers are agreed that in each of us, one or several of these glands get the center of the stage, probably largely through heredity, and so become the central glands of the life. As such they may cast the deciding vote as to what shall be the course of the individual among the trivial incidents as well as the climaxes and crises of his life.

It is probable that many cases of insufficiency become spontaneously compensated as life goes on. Such cases cannot be treated because of the generally accepted difficulty of recognition. Among such as have been diagnosed, Dr. Walter Timme has described a number where symptoms ascribed to the under-functioning of several glands become compensated by the hyper-functioning of the pituitary. The chief complaint is great muscular fatigability with headache across the frontal region; there is frequently rapid growth in height. Between the twentieth and thirtieth year, he finds beginning giantism, continuing headaches, mental and moral delinquencies. Some cases are highly excitable without cause, some show sex obliquities, one had kleptomania. He states that in all of their cases, the feeding of pituitary resulted in an abatement of all of the symptoms. If the feeding was diminished or stopped, the symptoms reappeared. Where compensation is finally effected, the symptoms disappear and examination shows an enlarged pituitary cradled in a *sella turcica* whose area has been increased through erosion of its bony walls.

Through the observations of psychiatrists, it is becoming evident that many times psychoses develop round certain types of glandular insufficiency. I will briefly describe one such case exhibited by Dr. Cheney in a clinic at Ward's Island. The patient was short and obese with the smooth skin and hairlessness of the hypopituitic. Infancy and childhood were normal. She became, though, increasingly retarded at school, and at eighteen began to refuse to show herself in public. Now at twenty-two, she insists that she is tall and beautiful, is still eighteen years of age, and has a handsome lover in the sky who will come some day and marry her. The case has not yielded to treatment, although all trouble with teeth and tonsils has been met and pituitary administered. Here the psychosis revolves around the extreme sensitiveness about the low stature and lack of feminine charm, the situation having been "met" by retreat into a dream world where all is as the patient wishes. The extreme neuro-biological view of human behavior is thus expressed by Dr. Henry A. Cotton, Medical Director of the New Jersey Hospital at Trenton "Psychoses arise from a combination of many factors, some of which may be absent, but the most constant one is intercerebral, biochemical, cellular disturbances, arising from circulating toxins, originating from chronic, focal infection situated anywhere throughout the body, and probably to some extent in disturbances of the endocrin system." Educators

are as yet hardly prepared to accept his further statement that this view will alone "provide basis for the proper treatment of the psychotic, the defective and delinquent individual."

In conclusion let us take a swift glance at the fascinating realm which these studies open out to us in the analysis of personality. The more exact investigators, realizing the limitations of our present knowledge, are wont to decry any such attempt at analysis as "mere arm-chair philosophy." We may accordingly take Berman's account of how glandular preponderances become the basis of the personality, "creating genius and the dullard, the weakling and the giant, the Cavalier and the Puritan," rather as a promise of future possibilities for the science of endocrinology. Relying on portraits and the salient traits as evidenced by their careers, Berman has expressed such characters as Napoleon, Nietzsche, Charles Darwin and Florence Nightingale in terms of endocrine secretion. According to him, Napoleon is to be regarded as pituitary-centered, with antepituitary superior as indicated by mathematical and logical ability, postpituitary deficient as shown by insusceptibility to sympathy and suggestion. There was instability in the action of both followed by degeneration. His insatiable energy would indicate an excellent thyroid, his pugnacity and animality a superb adrenal. Given these conditions plus his military education and the character of the times into which he was plunged, his career becomes plainly indicated. His rise and fall followed the rise and fall of his pituitary. Before he made himself emperor, it was noticed he was becoming fat, with an increasing paunch and layers of fat on hips, legs, the outlines characteristic of the hypopituitic. Along with these physical changes went a weakness of judgment which inaugurated the steps of his decline. After his banishment, the process continued till many of the symptoms of feminization, such as silky hair, white, delicate skin were plainly in evidence, together with the mental transformations which succeed deficiency of the pituitary,—apathy, indolence, lack of sex desire and fatigability.

In Florence Nightingale, we have a female pituitrocentric who presented strange contrasts in physique, physiognomy and character depending on variations in the balance of the two portions of the pituitary. Her reaction against the easy manner of life of her class and her struggle with the masculine world, to this writer, implies the existence of masculine traits and marks. We have long been familiar with the benign, haloed ministrant, but according to her latest biographer, Lytton Strachey, certain sides of her calling were pursued with a self-willed, pitiless determination which resulted in the death of her men associates in the case of Sidney Herbert and Arthur Clough. We have her own statements: "I have done with being amiable. It is the mother of all mischief" and "I attribute my success to this: I never gave or took an excuse. Yes, I do see the difference now between me and other men. When a disaster happens, I act, and they make excuses."

The official biography by Sir Edward Cook contains three portraits which show three distinct stages in her life history. The one, as she was at

25, is that of the typical post-pituitary with long, oval face, tall, willowy figure, delicate complexion. Then as the ante-pituitary gained an ascendancy, this changes to the thin, angular woman, with haughty eye and acrid mouth, as shown in the portrait taken when she was 38; and finally, with degeneration of the entire gland, we get the picture made of her in 1907, showing the fat, round-visaged old dame, her whole appearance bespeaking nothing so much as compliance and amiability. So entirely have her endocrines transformed "the Saint with the Lamp."

In what I have thus far given you, you have probably all realized that I have been preaching a new kind of determinism, a sort of predestination by endocrines, which in our present state of limited knowledge, is quite as hopeless as any doctrine laid down by medieval Church Fathers. I have, furthermore, taken the position that the psyche is completely at the mercy of these glands. In such a work as Stewart Paton's "Signs of Sanity," whose purpose is the laying down of principles for the establishment of sound mental habits, we find such allusions to the endocrines as these: "An excellent indication of the soundness of both the mental and physical organization is given in the appropriateness of the reactions taking place when necessary to concentrate energy and to follow that concentration by effective expenditure. The calling out of reserves of energy at a time when a supreme effort is required is dependent upon a physical organization largely due to inherited qualities, and some of these qualities may be traced back to animals as low in the scale as the jelly fish or the sponge. It is in this preparation, that ancestry declares itself, not an ancestry that goes back a few hundred years, but one that goes back to remote periods when functions connected with the strengthening, co-ordinating and integrating of ordinary nerve impulses were first beginning to operate." In specific illustration of the foregoing, we quote further: "Whether we undertake a mountain climb in a spirit of grim determination, or in a happy-go-lucky, vivacious attitude, is largely the result of the way our endocrine organs respond (secreting substances that both regulate and modify our impulses) to the demand on them. The stable emotional condition dependent on a well regulated glandular secretion is expressed in quiet interest, and a reasonable enthusiasm in the day's undertaking; moreover, the capacity to sustain enthusiasm depends very largely on the functional efficiency of the adrenals, the pituitary and thyroid bodies; so thoroughly interdependent are our physical and mental organizations." He further states that "in the most controlled and highest types of personality, which react appropriately and efficiently to critical situations, long generations of stable ancestors have been responsible for the nice adjustment and proportion maintained between the call to action and the actual response. The future of the human race will undoubtedly be largely influenced by the automatic adjustments, preparations for action, over which we have no voluntary control. So we stress the certainty that these more or less stereotyped

responses preparing the way for the discharge of energy in behavior form the basis of character and the foundations of the personality."

Thus we see that the bridges from the endocrines to the psyche are innumerable and thronged with visitants from which it appears there is no escape. Are there then no one-way paths in the opposite direction? What evidence have we for the mental or nervous control of the action of these glands? The answer will have to be, at present, practically none. I quote Dr. Carlson of the University of Chicago.

"The question of endocrine hypofunction and hyperfunction through direct nervous control is of great practical and theoretical importance. But despite the great amount of painstaking work in this field (and disregarding the still greater amount of speculation) it must be recognized that the entire question is an open one, except for the suprarenal medulla. Let us hope that the future will record better controlled observations and less speculation. But it seems to me that this statement is permissible: Endocrine secretory nerves, if present, play a minor or negligible role in the normal and pathological activity of the glands, otherwise demonstrable disturbances should be produced by denervation of the glands. It should, of course, be recognized that extreme changes in nervous activity may induce endocrine hypofunction or hyperfunction indirectly or by way of the blood through changes in metabolism." Perhaps the future will reveal the vasomotor system as the vehicle for the "propulsive power of an idea" which as teachers we would invoke against the domination of the flesh.

Further than this, it becomes apparent that thus far the studies in this field have yielded little that is clean cut enough to furnish a basis for new departures in educational theory and practice. We may become instrumental in clearing up endemic goitre and thus make a possible ethical and a certain esthetic contribution to society. We may recognize certain anomalies of reaction as due to endocrine dysfunction, but except in extreme cases the necessary therapy can at present by no means be indicated. Let us hope that such recognition will not deepen our pessimism, but enhance our charity and quicken our zeal that "spite of this flesh" we shall have attained our ideal. Above all, it behooves us to wait humbly on the threshold of this domain, lest we be counted among those who "rush in where angels"—and experts—"fear to tread."

PLEA FOR AVOCATIONAL EDUCATION

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We have heard much and done much for vocational education. This is wise. But it is not wise to do so little for avocational education. It is indeed important that we learn how to make a living but it is of equal worth that we learn to know how to use and enjoy that living made. Nowadays we are in danger of earning the living but losing the enjoyment of it. Perhaps this is what is happening and so the unrest and worry that afflict individual, industry, and nation.

What is the purpose of education? There are many definitions depending upon the point of view of the writer. However, here is one that will suffice for many. The object of education is to develop the best of which an individual is capable and also to help build society so that the individual shall have the chance to express his talents and abilities. Real education is to draw forth the best powers of expression not only in work but in play. Throughout this paper Play will be used in the larger concept meaning those interests that an individual follows not because he is paid to nor has to do but because he enjoys following them in his free time. The American constitution guaranteed wisely to do three things: "to provide for life, liberty and *the pursuit of happiness*." Here is the purpose and job of being and should we not train for the three privileges? In brief, education should not only furnish the means for making a living but it should provide the methods for wise and wholesome living.

We have done much in this land of ours to teach the methods of production but we have done little in comparison to teach the arts of appreciation. Music, dramatics, and other art forms are expressions of the play life of the working individual of which we speak. The end is not to produce a thing for itself but to use it for a larger and finer citizenship, and commonwealth. It is the end and not the means that counts for righteousness and civilization. A material civilization crumbles; a spiritual world endures. Have we not given too much attention recently to the materials and the means and too little stress to the purpose and ends of life? Materialism and the dollar sign seem to have permeated even our educational standards. Education must give the new focus and trend to our being if we are to find the true values, otherwise we will lose the very thing we seek. Do we not work and

strive in order to have that life more abundant? Jobs, cities, and industries exist only that man may live and enjoy the fruits of his labor and that his family may enjoy. We Americans need to learn the arts of enjoyment; of self entertainment. So far have we lost the arts of self expression that we pay to be entertained. The greatest American industry is that of commercialized amusements. Is this not a sad commentary and another indication that we are losing the art of self expression, the real purpose of education? We must teach children to play wisely and wholesomely. Children do not know how to play. This is a fact. Surveys in many cities testify to this awful truth. Grown folks do not themselves recreate because they have not the means nor the "know how." The city, the machine, the distribution of labor, and other agencies have robbed him of his birthright. Once vocation and avocation were one in the days of the craft guilds and the old cobbler. To-day man must find his being and soul outside his work. Vocational education will take care of itself but everything is against avocational training. We have delegated that to commercialized amusements that operate for *profit* and not for the *service* of humanity.

These truths I believe to be self-evident:—

- 1 That constructive wholesome Recreation is Real Education.
- 2 That School Playgrounds are as essential as School Buildings.
- 3 That provision for Recreation is a public function—a municipal utility as much as are streets, sewers, and water supply.
- 4 That Education is a year round process for twelve months and not nine.
- 5 That the three summer months when schools are closed oftentimes militate against the school term unless playgrounds are provided under leadership.
- 6 That there are four R's instead of three: Readin', Ritin', 'Rithmetic, and Recreation.
- 7 That modern school systems have recognized the importance of Play by providing the space, the facilities, and the direction.
- 8 That the School Plant should be used as a Community Recreation Plant after school hours.
- 9 That the hiring of play teachers is an educational function.
- 10 That we need Avocational as well as Vocational Education.

That constructive play is an educational force of real and potential value has long been recognized by progressive educators. One needs but read Joseph Lee's masterpiece, "Play in Education" to know the significance of this instinct in the growth and development of the child and the adult. Groos' two wonder books, "Play of Animals" and "Play of Man" have demonstrated their educational values. Richard Cabotes speech-making book, "What Men Live By" elevates Play to the fine arts and conclusively proves that it is one of the most powerful instincts, making for the health and joy of the individual and the human race. Children and men must *re-create*

themselves through their play. The founders of modern educational thought have all stressed this potential educational force. Froebel, Pestalozzi, Rousseau, Montessori, Wirth, Dewey, and others all place primary values upon this all central and powerful interest motive. It is the creative motif in life. It makes for the arts. It means the culture of the race. It is thru this medium that man feeds his imagination, emotions, and soul. If the materials be fine he will be likewise; if bad, he will reflect his materials.

Play is the serious business of childhood. Play is preparation for life. It is life and the living thereof. A child must play to live, grow, and develop. It is his very being. It is as important as food, sleep, or shelter. A child finds himself and the world thru his play. An abnormal or subnormal child is usually one who has not played or who has not had the normal opportunity to express its play periods at their proper time and place. This is the field of study—the influence of play on the defective and the delinquent. Child psychologists tell us that the child must express itself at these play periods; if it does not, after life shows the lack and defects. There is the “big Injun” age, the dramatic age, the “gang” age, and others—all these can be channelized for educational purposes. The gang spirit can be changed into a boy scout troop or a baseball team making for helpfulness and team work. There are the periods of nursing and to nurturing when children play house and have pets. Then there is the age that builds and makes when we must bring in the handicrafts. Playgrounds are doing much in the handicraft field. Then there is the rhythmic period when they learn coordination and bodily poise. We must give proper outlet to these desires to nurture, to build, to throw, to run, to dance. If we do not, we get abnormalities, perversions, and delinquencies. Mischief is the play instinct perverted or gone astray. It is the wrong kind of play. As a child plays, so it reaps. So he learns, grows, and becomes. Dissipation is wrong playing in the adult. Tell us how a man uses his free time and I will tell you what kind of a man he is.

This play instinct in adult life becomes the recreational desire in the adult. As the child plays so will the adult recreate. We need wholesome recreation among the older folks. In the adult it is a part of his rational living. It is an indispensable part of his daily routine. He needs it as much as a job, a family, or religion. Sometime within the 24 hours he must have wholesome recreation to refresh, relax, and recuperate. We must find expression for his desires, his dreams, his talents; if not, we get unrest and trouble. To pursue this study further would show that much of mental unrest and unhappiness comes because the worker in the city does not find outlets for his pent-up energy and his unfulfilled hopes. We must furnish him the means and methods for self-expression and refreshment. With the growth of cities and the Machine in Industry man is deprived of the means of self-expression. He must find himself outside his work day and in his play hour. Read Arthur Pound's “Iron Man.” Read also Robinson's “Mind in the Making.” These great works prove the point. It is well known that

what a worker does off the job oftentimes determines what he will do on the job. Off Duty time determines on duty time. This is why employers now are interested in the play life of their employees after 5:00 P. M. because it has much to do with the kind of work they will do after 7:00 A. M. It proves that vocational education must be interestd in avocational education. The happy union is of course where work and play are one. But modern industry destroys this ideal.

Our next truth is that school playgrounds and athletic fields are as essential as the school buildings. This is a growing axiom. One need but travel over the country to see the splendid adequate spaces being bought by school boards for play spaces. Joliet, Ill., a town of fifty thousand, has one school with twenty acres and the others average over five for play purposes. We talk no longer in terms of square feet per child but in acres per school. Elyria, Ohio, a town of twenty-five thousand, has just bought an athletic field for its high school of eighteen acres. These are not isolated places but are average. High Schools now have their stadiums as for instance, Tacoma, San Diego, and Peoria. This list could be extended. What the Gary, Indiana, school system did is proverbial. Every school has a block square playground with gymnasium and auditorium. In modern school systems more space is devoted to playground and athletic purposes than to the school buildings. Need we ask why? All work and no play makes Jack a dull boy. A systematic and educationally conducted recess, noon, and afternoon play period makes for better students and better class work. It has been tested and proved. It means clearer brains, more active bodies, newer blood, rejuvenated muscles, all this making for better study and recitations. Then again we know that playgrounds and athletic fields are in themselves classrooms where the greatest lessons of life and character are taught and learned; hence the need of an educator or leader in charge of this delicate laboratory. In the play periods we have the biggest opportunity to teach ethics and morals. We need not have a special recitation for these subjects. Moral conduct and ethical training are taught by act and not precept. It is in the doing of right and not preaching that help us to form right habits. Your playground is your training camp. Here if wisely directed can be taught habits of loyalty, team work, solidarity, recognition of the rights of others, fair play, the rules of the game, following skilled leadership, and the other lessons of life. Here is real fundamental education. It is these lessons that make for success in the individual and society. For this reason schools should maintain their physical education and recreation departments for twelve months rather than nine.

Our next truth is that recreation is a public function—a municipal utility. It is remarkable to what extent and how rapidly this fact has been recognized over the country. A study of the Year Book of the Playground and Recreation Association of America shows that nearly five hundred cities and towns of all sizes, all kinds, and all places are now providing recreational

facilities from taxes. In most instances the school department is doing much and this is rightly so because it already has the grounds, the buildings, the facilities, the teachers, and the children. It is also their field because it is education. Practically every modern progressive school system now operates summer playgrounds and maintain a year round playground and recreation system for young and old. This means economy, foresight, and efficiency. Milwaukee, Wisconsin, thru its school board spends \$300,000 a year for its school recreational centers largely devoted in the evenings to adult recreation. Chicago, Illinois, operates over seventy school centers for neighborhood adult recreation. Cleveland, New York, Detroit, San Francisco, and in fact, all of our large city school systems use the school plant for recreation purposes both by children and adults. Not only is this true of the large cities but it is also true of most smaller towns. It would surprise one to see the money and space being devoted to recreational facilities in our schools. The gymnasium and the auditorium have become the centre of the high school. Not only high schools but oftentimes grammar schools have large gymnasiums and auditoriums. It was always so in ancient times when the school was built about the stadium. In the Middle Ages, riding, hunting, fencing and all other arts of the outdoor world constituted the curriculum of schooling.

Education is a year round process and cannot be cut off at the end of nine months. Universities are now talking of four quarters. They have summer sessions. Superintendent of Schools Cody of Detroit, Michigan, is talking of holding school thru summer. It is using the facilities all the time. It means economy, savings, and efficiency. Is it not a waste to use school land and buildings only five hours of twenty-four and five days out of seven and nine months out of twelve? Such a waste of good public property paid out of the people's taxes. No industry could be conducted on this plan. The school plant should be operated in the afternoons and evenings for physical education and recreation purposes, and it should not be closed during the summer. Any principal or teacher can tell you what a summer vacation means to discipline and scholarship, especially, if these summers have been spent at home in mischief about the streets. It takes weeks to get regular school work back to normalcy. Many a fine student has been ruined by a bad summer. The "gang" got hold of Bill in the fifth; he lost his grip and a grade.. Study your problem of retardation and what influence the wanton play of summer had to do with it. These three months during the summer can be fruitful of the best in education. Here besides games and sports can be enjoyed the handicrafts, gardening, toy making, rhythemics. Here is where vocational and avocational education becomes one.

Recreation in days gone by always included as a fundamental in the school course. It was only when we entered the mid-Victorian period that we over-stressed the mental subjects. The play fields and athletics have always been an integral part of the English system. Read Whittier and others

to tell you of the little old red school house and how master and pupils played together. Need we repeat what part sports and games, music and art played in ancient education, especially, the Greek and Roman? It was the basis of education in the Middle Ages—hunting, wrestling, boxing, riding, fighting, falconing, and the arts. Today in the Orient one sees the inroads of physical education and recreation as a central motif. Recreation is not only an instrument for health, physical correction, and mental stimulus but is profoundly an instrument for character, for virtue, and for citizenship. Read Robinson, Dewey, and others on this point. Recreation has tremendous educational power because it touches the emotions, it reaches the soul, it catches the child thru its own initiative and imagination. Recreation builds morals, discipline, and loyalty. Why did the army camps use recreation as a morale builder? What develops the alma mater spirit in college but the sings, the cheer leaders, the sports, pastimes, and recreational life. Shall we not harness and use this force for the best? This is the way to reach the child soul thru its interests, its desires, its dreams. Recreation is indeed the fourth "R" and needs more attention as a straight educational subject of primary importance. In the field of recreation I would also include the arts, music, and dramatics.

To the next truth I need not give a large paragraph, namely, that school systems are providing now for adequate space, play facilities, and recreation leadership. There are few modern school buildings being erected that do not include gymnasium and auditorium. Most high schools now have swimming pools. A small high school in a town of fifty thousand spent twenty thousand alone for their stage scenery, lights, and equipment. School authorities everywhere are now providing for year round leadership and taking care of the three summer months by providing leaders. Read the publication of the Playground and Recreation Association of America and Community Service to realize how much all this is true.

School plants nowadays almost everywhere are being used after school hours for community, social, and recreational purposes. The grounds are opened after school hours for the play and sport of the neighborhood. The school buildings are opened in the evening for neighborhood social recreation and gatherings. The gymnasium is used not only by the school teams but in the evenings city teams and industrial leagues use the school facilities and rightly so, because they are public property and should be functioning the *most* rather than the *least* of the twenty-four hours. The stage is now used by the community for little theatre groups. The auditorium is used for community lectures, music memory contests, and the Parent-Teacher Associations. In brief the whole school plant indoor and outdoor has become a community center functioning to the social and recreational needs of all thru-out the year. It is rapidly becoming a real service institution that functions all the time to every one.

The hiring of recreational and physical educational leaders is as essential as hiring a history or mathematics teacher. The difficulty is to get the trained worker and leader. Good men and women in this field are hard to get. Universities and the private schools cannot turn them out fast enough. They should be more than mere coaches or drillers in setting-up exercises. They must be community minded, organizers and executives who think in terms of every school boy and girl in the games—hundred per cent participation—no bleacherites—every one doing something worth while. The leader should be an educator focusing his activities because of their pedagogic values. Such a leader does not emphasize picked teams and “stars” but rather the progressive physical development of every pupil. Care must be used in the selection of such a person. Athletics can make or break a school system. This leader is in a strategic position to do good or evil. They can teach ideals and character, sportsmanship and fair play, or the gospel of win at any cost, “hook or crook.” Too often we hire mere coaches—winners of games—rather than conservators of health and right living. Recreational activities should be used for their educational values as well as for their therapeutic purposes.

We must have vocational training for we must know how to earn a living to live. But the inventions, labor saving devices, and the machine, man as an individual does not count for much nowadays. Steam and electricity furnishes the power; hence, we must teach our boys and girls how to use and enjoy this living that we make. Once he could when a cobbler give you vent to his imagination, initiative, and desire for achievement in the making of the whole shoe. Today he does only one five-hundredth part of the shoe. The sense of achievement cannot be found in his work but in his play. Most people do not know how to live properly because they have not been taught. Most children do not know how to play because they have not been directed. Most adults are dependent on mechanical amusement or commercialized entertainment because they do not know how to amuse themselves. It is pitiable. Our school must teach the real lessons of life as to *how* to live. We work to live.

STUDENT ASSISTANTS IN A HIGH SCHOOL LIBRARY

EDITH A. KING, JACKSON

One of the most interesting projects for High School Libraries is that of having High School students as assistants. Having worked with such assistants for over ten years and still finding them a source of joy, I may be allowed to be enthusiastic over the plan.

Our first assistant was appointed to fill an immediate need for some one to carry telephone messages, since that much abused instrument was located in the library, and obviously, the librarian could not answer it and be absent from the library delivering messages at the same time. This boy was also to help in any way with the library work. It soon became apparent that more students could be made useful in the same way, so others were added as the work increased. When five or six were working, it became necessary to have them meet as a class once a week that directions for the work might be given at the same time. Extra lessons in reference work and the use of the library tools were given and a library spirit of service was aroused. The results were so satisfactory to the students, to the school, and to the library that the plan has been continued as a regular part of the school's activities.

Library Work is now an elective study for grades 10A to 11A, and is indicated on program cards as Lib. (1), for first semester's work, Lib. (2), for second semester's work and so on. Most students usually continue it through the remainder of their High School course, three to five semesters according to the grade in which they begin it. Pupils may elect the work with the permission of the librarian and those best fulfilling the requirements are given the first chance since the class is limited to about twenty-five. Their past work is looked up, teachers are consulted, and their fitness for the work carefully considered. Good standing in their studies, pleasing personality, a desire to continue in library work as a profession are first considerations. Pupils working outside of school, or engaged in many other activities, are often unable to give a sufficient amount of time to make it practical for them to attempt to do any work in the library. Other things being equal, those having had the least advantages are chosen because it may mean so much to them.

Each assistant is expected to spend one study period or other definite time, as noon, after school, or recess in the library in actual work; and also,

to attend the library class which meets after school one night each week and to prepare the lesson for that meeting.

Until three years ago, this work was done without extra credit or other remuneration. Now, one half credit is given for each semester's work after the first, thus enabling a student who begins it as a 10A, to earn two full credits, the maximum amount allowed. However a student who lacks a half credit is not permitted to take up the work for the sake of earning the needed credit.

Much of the routine work, charging and discharging books, putting books up on the shelves, reading shelves, keeping books and room in general order, answering questions and helping with reference work, and taking care of the Check lists from the study rooms, is done by assistants, under the constant supervision of the Librarian; but, done in a definite time, under these conditions, instead of being drudgery, this work forms the basis of the best kind of training in promptness, accuracy, thoroughness, and reliability, because these can be insisted upon and encouraged and help up as desirable and necessary attributes of all work. For shelf reading, one section of shelves is assigned to each assistant for reading, and as these sections are changed each week, they have the opportunity of becoming familiar with all classes of books.

Often in extra time, the assistants like to do other work, such as type-writing, arranging and filing cards, helping to prepare new books for the shelves, or caring for clippings and pamphlets, thus giving them an insight into various kinds of library work.

In the Library classes, detailed instruction is given about the catalog, the classification, the charging system and regulations about desk work; later, definite lessons are assigned in the study of reference books, with topics and questions to be looked up in the books under consideration. Authors and titles of books are drilled on constantly in many ways. Reading of biography, history, science, drama, poetry, and novels by standard authors are recommended and occasionally we have an hour in which we talk over our "joy reading." Lists of allusions, each student hunting up and making a little speech about one, with reference to the book in which it may be found, make a profitable lesson. Bibliographies, special indexes, history of books and libraries, and other general topics are taken up with the older classes.

The character training which can be included in a course with such groups, is perhaps the most important work done. Accuracy, promptness, thoroughness, and perseverance is expected in all work. The use of initiative, the value of being dependable, the advantages of neatness and good manners, the qualities contributing to a pleasing personality can be discussed freely; while courtesy is made the keynote of library etiquette. "Business-like conduct in libraries" by Bostwick has chapters which apply equally well to High School libraries, and "A message to Garcia" read each semester is a never-failing source of inspiration.

To satisfy the present-day liking for organization, these groups are formed into a Library Club which elects officers once a semester, holds business meetings once a month, and carries out the social activities of the Club. The parties, dinners with real toasts, and outdoor activities of various kinds held occasionally, unite us as friends, bring in the feeling of comradeship, and help to create library spirit; for people who play together one day, work together better the next day.

Over one hundred and fifty students have now served the school as library assistants and an annual reunion of these each June, has become an established date. Although they are scattered after leaving school, over fifty are always present, messages from many absent ones are read, and a happy time of renewing acquaintances is enjoyed. Several of these former assistants are now working at the Public Library and the University Library and intend to continue in the library profession.

The results of this plan for assistants have been found to be far reaching. To the student, taking the course for two years, it means more friends and acquaintances among the students and teachers, a personal familiarity with books not easily gained outside of a library, a knowledge of reference books and their uses which is of value later in college, in business, or in every-day life. The responsibilities of the position develop poise, initiative, and personality, helping many a shy, quiet beginner to become a self-reliant individual.

The results to the school are even greater, for these students, passing their knowledge on to their classmates, take the library to the school in a way no one librarian can do. It becomes their library, and feeling at home, they enjoy and use it to the fullest extent. Other students will ask help of their friends when they will not admit ignorance to an older person. Although the actual work might sometimes be done by a librarian more quickly without the presence of these young people, whose work requires constant supervision, the real results to all concerned are worth all the time and thought involved.

And, to the Librarian, this plan means real joy, for the association with such boys and girls, many of whom become real friends, brings more lasting pleasure and a greater reward than work with books alone can possibly do.

SCIENCE BOOKS FOR HIGH SCHOOL LIBRARIES

PRINCIPAL B. J. RIVETT, DETROIT

The following are lists of books which will be read by high school pupils. These are arranged in three groups, in order of their preference. The first list should be in every library, large and small. Many books in the third list are of the reference type, to be consulted occasionally by pupils or teachers. This is not to be considered as a complete bibliography but rather as a list of books with which the writer is familiar.

First List

I. Biology.

1. (a) Wild Animals I have Known by E. T. Seton.
(b) Wild Animals at Home by E. T. Seton.
Doubleday, Page & Co.
2. The Haunts of Life by J. Arthur Thompson—Harcourt, Brace & Co.
Authoritative and as fascinating as a story.
3. Insect Stories by Vernon L. Kellogg—Henry Holt & Co.
Very interesting to children and adults and written by an authority on the subject.
4. The Life of the Bee by Maurice Maeterlinck—Dodd, Mead & Co.
5. The Life of the Fly by J. H. Fabre.

II. Chemistry.

- *1. Creative Chemistry by E. E. Slosson—Century Co.
Should be read by young and old.
The most interesting book on the subject that has been written.
The author took his doctor's degree at the University of Chicago in Chemistry.
- *2. The Chemistry of Commerce by R. K. Duncan—Harpers.
Another readable book by an authority.
- *3. The Romance of Modern Mining by Archibald Williams—
C. Arthur Pearson, London, Publishers.
Not exactly on chemistry; a very interesting book for everybody.

III. Physics, Radio, and Automobile.

1. The New Knowledge by R. K. Duncan—Harpers.
2. Experimental Wireless Construction by A. P. Morgan—Wireless Press, 326 Broadway, New York, 35c.

3. Wireless in the Home by Leade Forest—DeForest Radio Telegraph & Telephone Co., New York, 15c.
4. How to Set up an Amateur Radio Receiving Station by Lee de Forest—Address as above, 10c.
5. How to Make Wireless Receiving Apparatus—Experimenter Publishing Co., 233 Fulton St., New York, 35c.
6. The Book of Wireless Telegraph and Telephone by A. Frederick Collins—D. Appleton Co.
7. The Modern Gasoline Automobile by V. W. Page (1920)—Norman W. Henley Publishing Co.

IV. Juvenile Books for Junior High Pupils.

1. J. H. Fabre's Secret of Every Day Things.
2. J. H. Fabre's Story Book of Science—Century Co.
3. Collin's Book of Stars by Appleton Co.
4. Collin's How to Fly by Appleton Co.
5. Harper's Gasoline Engine Book by Verrill.
6. Harper's Electricity Book for Boys by J. H. Adams.
7. Thinking It out by Archibald Williams—Nelson Co.

V. Magazines—Scientific American.

Second List

I. General.

- *1. Thompson's Outline of Science in 4 volumes.
2. Tower's Story of Oil—published by Appleton's.
3. The Romance Series
 - a. The Romance of Aeronautics by C. C. Turner—Lippincott.
 - f. Romance of Modern Manufacturing by Chas. R. Gibson.
 - b. Romance of the Animal World by Edmund Selous—Sealey, Service & Co., London.
 - c. Romance of Insect Life by E. Selous.
 - *d. Romance of Modern Chemistry by Jas. C. Phillips.
 - e. Romance of Modern Locomotion by Archibald Williams.
 - g. Romance of Plant Life by G. F. Scott.
Elliott—Sealey, Service & Co., London.
 - h. Romance of Photography.
4. How It Is Made by Archibald Williams—Thos. Nelson & Son.
- *5. Science from an Easy Chair by Lankaster—Allard & Son, London.
There are chapters on Swiss glaciers, motion pictures, ferns, the ancestors of flowers, elephants, fatherless frogs, laughter, pygmy races of men, cause of typhus fever, whales, carriers of disease, etc.
By a scientist who can write.

II. Biology.

1. The Book of a Naturalist by W. A. Hudson (1919)—Geo. H. Doran Co.
High School pupils will find this book as entertaining as a volume

of short stories. There are chapters on bats, toads, moles, wasps, birds, dogs, wild flowers, and earth worms.

2. Morley's Wasps and Their Ways—Dodd, Mead & Co.

- *3. J. H. Fabre's books.

The Life of the Spider, The Mason-Bees, Bramble Bees and Others, The Hunting Wasps, The Life of the Caterpillar, The Life of the Grasshopper, etc.

III. Astronomy.

1. Astronomy with an Opera Glass by G. P. Serviss—D. Appleton & Co.
2. The Friendly Stars by Martha E. Martin—Harpers.
3. Popular Astronomy by Flammarion. Price \$6.00.

IV. Travel.

1. Vagabond Journey Around the World by Harry Franck.
2. Cook's Voyages.
3. Taming New Guinea by Capt. C. A. W. Monckton—John Lane Co., 1921.

Full of adventure; will be read by boys.

4. In the Amazon Jungle by Lange—G. P. Putnam Co.
5. The Friendly Arctic by Stephanson.

V. Chemistry.

1. Hendrick's Everyman's Chemistry—Harper's—Very good.
2. Modern Chemistry and Its Wonders by Geoffrey Martin—Van Nostrand Co.
4. Chemistry of Familiar Things by Samuel S. Sadtler—Lippincott.
5. Gas and Flame by Major Auld—Geo. H. Doran Co.
The use of poisonous gases in the great war is described by an English authority.
6. Chemistry in the Service of Man by Alex. Findley—Longman, Green & Co.

VI. Physics.

1. Scientific Ideas of Today by Chas. R. Gibson—Seeley, Service & Co., London.
2. Easy Lesson in Einstein by E. E. Slosson—Harcourt, Brace & Co.
3. Einstein Theory of Relativity by H. A. Lorentz—published by Brentanos, New York. A concise statement of the theory.
4. Questions and Answers Relating to Modern Automobile Design by V. W. Page (1921)—Norman W. Henley Co.

VII. Magazines.

1. Popular Mechanics.
2. Radio News.
3. Science and Invention

VIII. Juvenile.

1. Houston's Series of Wonder Books by Fred Stokes Co.
2. Harper's Series.

3. Wonders of Science Series by Houghton, Mifflin Co.
Modern Triumphs in this series is good.

Third List

I. Biology.

1. Trees by Julia E. Rogers—Doubleday, Page & Co.
2. Adventures Among Birds by W. A. Hudson.
3. How to Know the Wild Flowers by Dana—Scribners.
4. The Doubleday, Page & Co. Series.
The Moth Book by Holland.
The Butterfly Book by Holland.
The Insect Book by Howard.
The Frog Book by Dickinson.
The Reptile Book by Detmars.
The Mushroom Book by Marshall.

II. Chemistry.

1. Manual of Industrial Chemistry by Allen Rogers—D. Van Nostrand Co.
2. Outlines of Industrial Chemistry by Frank H. Thorp—Macmillan Co.
- *3. The Scientific American Cyclopedia of Formulas by Albert A. Hopkins—Mann & Co., New York.
4. Chemistry of Common Things by Brownlee and others—Allyn & Bacon.

* Must be on any list.

SYNOPSIS OF BUSINESS MEETING
PROCEEDINGS OF THE FIFTY-EIGHTH MEETING OF THE
MICHIGAN SCHOOLMASTERS' CLUB, HELD AT ANN
ARBOR, MICHIGAN, MARCH 29-30, 1923

Hill Auditorium, March 30, 1923.

Meeting was called to order by the President, William Prakken. Upon motion, the minutes of the 1922 meeting, as published in the 1922 Journal, were considered as read and approved.

The financial report of the Secretary-Treasurer was read and adopted together with the report of the Auditing Committee.

The report of the Nominating Committee was read, adopted, and the officers named therein were declared elected.

Supt. L. A. Butler spoke of the long and valuable services of Mr. H. N. Chute, President of the Club in 1913 and for forty-nine years a teacher in the Ann Arbor High School, and upon motion the Secretary was authorized to send an appropriate telegram to him.

The Committee on Modern Languages was discharged.

The report of the Committee on Investigation of the Field of Secondary Education was read and the Committee continued.

The report of the Committee on Teachers' Agencies was read and accepted, and upon motion of E. H. Miller, the report was allowed to be published in the Michigan State Teachers' Association's Quarterly.

The business meeting then adjourned to hear an address given by Mr. Stefansson.

L. P. Jocelyn, Secretary.

REPORT OF THE NOMINATING COMMITTEE

President—Miss Lila Fyan, Northern Eastern High School, Detroit.

Vice President—W. F. Lewis, Northern State Normal, Marquette.

Secretary-Treasurer—L. P. Jocelyn, Ann Arbor, Mich.

Member of the Executive Committee—A. R. Crittenden, University.

L. F. Forsythe, Chairman, Ann Arbor.

Wm. E. Praeger, Kalamazoo College.

J. P. Everett, Western State Normal.

J. B. Edmonson, University.

Nominating Committee.

REPORT OF THE AUDITING COMMITTEE

We have examined the accounts of the Secretary-Treasurer and have found them to be correct.

O. V. Adams, Chairman, Ann Arbor.

R. W. Ward, Mt. Clemens.

C. S. Larzelere, Central State Normal.
Committee.

REPORT OF THE COMMITTEE ON INVESTIGATIONS OF THE FIELD OF SECONDARY EDUCATION TO THE MICHIGAN SCHOOLMASTERS' CLUB, MARCH 30, 1923

I. PROCEDURE

After consideration of the possible fields of investigation the committee decided that the contribution most serviceable to Michigan schoolmen at present, would be the assembling in convenient form of brief statements concerning the experimental studies now in progress. To this end, directions and blanks for reporting such studies were sent to the Michigan High Schools which are members of the North Central Association. Replies were received as follows:

Number of schools to which blanks were sent.....	113
Number of schools replying	54
Number of schools reporting experiments	26
Total number of experiments reported.....	52

The committee reviewed their replies and prepared the annotated list of studies in progress which appears below.

II. FINDINGS

A. There *is* experimental work in Michigan secondary schools. The assertion has been made frequently that the high schools are non-progressive, that they are not using the scientific method in studying their problems. The number and nature of the studies listed below, however, indicate to the committee that these charges are not well-founded; on the contrary, many high schools in the state are conducting worth-while investigations.

B. The studies reported have been grouped under four main heads: Instructional Administrative, Extra-Curricular, and Financial. The assignment of studies to these several headings has been necessarily arbitrary but it is felt that some such organization facilitates use of the list. Most of the studies are classed as Instructional.

This indicates a wholesome conditon, namely that instruction is recognized as the major concern of our high schools.

It is hoped that this list may be of value to schoolmen. Through its aid men who are engaged upon a particular problem frequently can get in touch with others working along the same line.

C. The committee is impressed by the relatively small number of studies whose results are expressed objectively. In other words, many of the studies lack definiteness. Too much is left to unsupported judgment.

III. RECOMMENDATIONS

The committee recommends:

A. That the investigation conducted by this committee be in the field of instruction.

B. That the studies carried on in high school next year be so devised as to provide for objective measurement of results.

IV. BRIEF STATEMENTS OF INVESTIGATION

A. Instructional.

1. Comparing one method with another for teaching occupational try-out courses which are for the purpose of giving educational and vocational guidance.—R. G. Gould, Head of Dept., Detroit, Southeastern. ffl

2. To improve study methods of freshmen through analysis of study procedure reported by students.—Edna N. Heilbrown, Teacher of Geography, Saginaw, E. S. High.

3. To determine, by means of standard tests with entering of 9-B's and at semester intervals thereafter, if maturity and further mathematical training other than arithmetic strengthen arithmetical ability.—R. V. Allman, Head Mathematic Dept., Northern High of Detroit.

4. To determine the ideas which should be the core of eleventh grade U. S. History, by learning what historical points are known and discussed in the home.—W. C. Horton, Teacher, Albion High.

5. Effect of a published honor roll.—H. L. Marvin, Principal, Midland.

6. Training backward students in more effective study habits, through diagnosing and remedying individual difficulties.—A. D. Spillard, Principal, U. of D. High, Detroit.

7. To determine causes of excessive failure in all departments of instruction and to devise means to remedy the situation.—J. L. Tanis, Assistant Principal, Northern High of Detroit.

8. Use of scale of six models of increasing merit, by which students in turning classes may grade their own work, thus being intended to develop students' power of appraisal and of judgment, and to make more definite the goal.—L. G. Burgess, Head of Dept., Detroit, Northwestern.

9. To design a comprehensive chemistry test and to establish forms for the same.—B. J. Rivett, Principal, Detroit Northwestern.

10. Three experiments in foreign language teaching: (a) Effectiveness of a ninth grade course in General Language. (b) Experimental class in French with emphasis on "reading for general comprehension." (c) Separating French pupils into ability groups after first semester.—Lilly Lindquist, Supervisor of Foreign Languages, Detroit, Northwestern.

11. Three experiments in history teaching: (a) Effectiveness of Word History course in ninth grade.

(b) Use of Rugg's experimental Social Science course in the ninth grade. (c) Studies to discover the larger mental processes involved in the study of history.—History Department, Detroit Northwestern.

12. To ascertain the I Q necessary for a pupil to carry successfully the work in high school Latin.—John S. Page, Superintendent, Howell High.

13. To determine the benefits to be derived from keeping a special card record for each student of all outside reading for the full high school course.—Eva M. Kinney, Head English Dept., Northern High School of Detroit.

14. Comparison of general mathematics with algebra in ninth grade and with geometry in tenth grade.—C. I. Milton, Principal, St. Joseph, Mich.; W. H. Cain, Principal, Kalamazoo Normal High.

15. Effectiveness of required social science during eleventh and twelfth grades.—E. P. Clarke, Superintendent, St. Joseph High.

16. Selection of physics experiments most efficiently carried on by the individual laboratory method and those by the demonstration method.—E. W. Kiebler, Teacher of Physics, Hillsdale High.

17. Comparison of project teaching with formal recitations in Zoology and Botany classes.—R. G. Weihe, Principal, Wakefield Township High.

18. To determine the most satisfactory methods of presenting ninth grade bookkeeping and typewriting by trying out various plans with different classes and testing results at end of course.—C. W. Blanchard, Head Coml. Dept., Northern High of Detroit.

19. Development of special curricula in vocational education. This involves making job analyses and the building of specialized curricula around a core group of standard subjects.—F. G. Allen, Asst. Prin. Cass Technical High, Detroit.

20. To determine the validity of completion, conventional, and true-false tests in American History.—J. P. Shand, Prin., Hudson High.

21. Products from Latin instruction. Study being made in co-operation with the American Classical League through the University of Michigan Bureau of Tests and Measurements.

22. Studies made for the North Central Associations: (a) Teacher Load. (b) Size of Class.

23. To aid in the Lincoln School investigation of the degree to which the content side of chemistry is being effectively taught in the average high school.—A. J. Wulff, Teacher, Detroit Northern High.

24. Effect on scholarship of study periods devoted wholly to a single subject as compared with the effect of dividing the period among two or more subjects.—W. H. Cain, Principal, Kalamazoo Normal High.

25. In cooperation with Dr. Freeman of the University of Chicago, to determine the value of moving pictures in high school physics.—E. C. Rolfe, Head of Exact Science Dept., Detroit, Northern High.

26. Comparison of spelling ability of present day students with those of 1845.—A. R. Shigley, Supt., Allegan High.

27. Several experiments in Latin in connection with the American Classical League investigation. (a) Determination of proper vocabulary by means of word counts in English reading. (b) Modification of Latin I better to meet the needs of students below normal ability. (c) Determination

of courses taken most frequently by Latin students.—A. E. Bartlett, Head of Dept., Detroit Northern High.

28. Comparison of spelling ability of rural with that of city trained children.—A. R. Shigley, Supt., Allegan High.

29. To assist backward pupils by making re-adjustments after markings.—E. I. Chapman, Principal, Detroit Western.

B. Administrative.

1. Advisors assigned to pupils for purpose of reducing failures, each advisor having one period off per day for this personal work, attempt being made to determine if the increased cost is justified by results obtained.—C. A. Fisher, Principal, Kalamazoo Central High.

2. Classification of pupils into groups on basis of mental capacity, for purposes of adapting work better to needs of pupils.—Hugh Fancis, Principal, Traverse City High; P. J. DuFrain, Principal, Pontiac High.

3. Formulation and adaptation of a marking and honor point system to stimulate students to better work and to select those capable of pursuing college work, those deserving merely graduation and those falling below graduation standards.—L. L. Forsythe, Principal, Ann Arbor High.

4. To compare the effectiveness of a 60 minute period using supervised study with that of a 45 minute period without supervised study.—A. J. Watteson, Principal, Bessemer High; G. W. Murdoch, Principal, Detroit Southwestern; A. C. Luchtman, Superintendent, Alma.

5. To determine the desirability of eliminating midyear promotions from 8-A to 9-B in a crowded school, through having pupils take some eighth grade and some ninth grade work continuously throughout the year.—S. S. Nisbet, Principal, Fremont High.

6. To compare the records of students in Detroit high schools with their subsequent college records in order to discover if success in college is related to high standing in high school.—B. J. Rivett, Principal, Detroit Northwestern.

7. Comparison of value of Saturday classes with that of classes on the other five days.—John Rufi, Principal, Ironwood High.

8. Cooperation of the high school with correspondence schools to provide vocational guidance and training for students who will not go to college.—S. C. Mitchell, Principal, Benton Harbor High.

9. Comparison of the general house or grade room system with the home room plan.—I. E. Chapman, Principal, Detroit Western; G. W. Murdoch, Principal, Detroit Southwestern.

10. Attempt to determine the best arrangement for the lunch period in the high school program.—I. E. Chapman, Detroit Western.

11. To study the effect of segregation by sex on scholarship in classes Latin, Mathematics, Modern Languages, and English, all having been observed under segregation for a period of one year.—J. L. Tanis, Assistant Principal, Northern High of Detroit.

C. Extra Curricula Activities.

1. Form of student participation in government, and a program for extra curricula activities.—G. E. True, Principal, Dowagiac High.

2. To work out a definite method for awarding school letters, this is to be based on proficiency in physical, scholastic, ethical, leisure, social, and vocational activities.—H. J. Porritz, Principal, Allegan High.

3. To determine the place and function of student representative assemblies in the high school.—I. E. Chapman, Principal, Detroit Western; G. W. Murdoch, Principal, Detroit Southwestern.

D. Financial.

1. To determine the present practice in Michigan schools with regard to tuition, particularly to learn if any effort is being made to charge for actual costs.—F. J. DuFrain, Principal, Pontiac.

P. T. Rankin

G. W. Murdoch, Chairman

J. B. Edmanson

L. P. Jocelyn, *ex-officio*

Wm. B. Prakken, *ex-officio*

TREASURER'S REPORT, 1922-23

1922

RECEIPTS

Balance as per last report, Commercial Department.....	\$ 50.33
Balance as per last report, Savings Department.....	27.66
March 18, Deposit dues and banquet receipts.....	58.75
March 22, Deposit dues and banquet receipts.....	173.25
March 25, Deposit dues and banquet receipts.....	162.75
March 30, Deposit dues and banquet receipts.....	320.75
March 30, Deposit dues and banquet receipts.....	434.00
March 31, Deposit dues and banquet receipts.....	285.75
March 31, Deposit dues and banquet receipts.....	293.12
April 1, Deposit dues and banquet receipts.....	3.51
April 1, Deposit dues and banquet receipts.....	48.12
April 1, Deposit dues and banquet receipts.....	220.00
April 15, Deposit dues and banquet receipts.....	7.00
May 19, Deposit dues and banquet receipts.....	38.00
Dec. 9, Deposit dues and banquet receipts.....	9.00
Dec. 30, Deposit advertisement.....	5.00

1923

Jan. 20, Deposit dues and banquet receipts.....	10.00
Feb. 8, Deposit sale of journal.....	50.00
Feb. 28, Deposit advertisement.....	15.00

Total to March 1, 1923.....\$2,211.99

1922

DISBURSEMENTS

March 10, Check No. 564 to H. J. Abbott, P. M., stamps for program.....	\$ 40.00
March 16, Check No. 565 to H. J. Abbott, P. M., 2c stamps for program...	5.00
March 20, Check No. 566 to H. J. Abbott, P. M., 2c stamps for program...	10.00
March 31, Check No. 567 to Michigan Union for banquet.....	393.75
April 1, Check No. 568 to E. M. Shuter, Michigan U Opera.....	25.00
April 4, Check No. 569 to Nellie Breathwaite, clerk.....	5.70
April 4, Check No. 570 to L. P. Jocelyn to April 1, 1923.....	150.00
April 5, Check No. 571 to Cash for doorkeepers.....	27.50
April 12, Check No. 572 to Alice M. Johnson, clerk.....	5.10
April 12, Check No. 573 to O. D. Morrill, Edmonson's letter.....	1.20
April 12, Check No. 574 to Manning Bros., 4 lantern slides.....	4.00
April 13, Check No. 575 to Marthena Drybread, clerk.....	5.10
April 13, Check No. 576 to Margaret Gilles, clerk.....	5.10
April 13, Check No. 577 to S. W. Millard, badges, receipts, tickets.....	40.75
April 29, Check No. 578 to R. G. Schenck, typewriter.....	30.00
May 18, Check No. 579 to G. S. Lasher, English conference, 1921.....	5.30
May 18, Check No. 580 to University of Michigan, janitor service.....	6.82
May 18, Check No. 581 to Miriam C. Barton, Commercial Conference.....	3.85
June 7, Check No. 582 to H. J. Abbott, P. M., 2c stamps.....	2.00
June 9, Check No. 583 to Louise B. Wilson, Economics Conference.....	11.64
June 9, Check No. 584 to Lida Rogers, Biology Conference.....	18.64
June 9, Check No. 585 to Ann Arbor Press, Printing.....	253.05
June 14, Check No. 586 to The Athens Press, L. A. Butler, Comm.....	21.00
June 14, Check No. 587 to Marion Miller, clerk.....	9.00
June 21, Check No. 588 to Office expenses for one year.....	205.15

MICHIGAN SCHOOLMASTERS' CLUB

Aug. 1, Check No. 589 to R. G. Schenck, drawings for Prof. Whipple.....	4.50
Sept. 15, Check No. 589½ to H. J. Abbott, P. M., for stamps.....	5.00
Sept. 25, Check No. 590 to L. P. Jocelyn, salary to Oct. 1.....	150.00
Sept. 29, Check No. 591 to H. J. Abbott, P. M., stamps for proc.....	15.00
Oct. 5, Check No. 592 to H. J. Abbott, P. M., stamps for proc.....	20.00
Oct. 16, Check No. 593 to H. J. Abbott, P. M., stamps for proc.....	3.29
Nov. 8, Check No. 594 to C. S. Larzelere, Ex. Com. Meetings.....	15.88
Dec. 9, Check No. 595 to Alma Ackley, Biology Research Work.....	11.23
Dec. 9, Check No. 596 to Dorothy M. Roehm, Classical Conference.....	3.50
Dec. 15, Check No. 597 to Ann Arbor Press, printing Journal.....	402.69
1923	
Jan. 3, Check No. 598 to Michigan Union, Murdock's Educational Com.....	2.25
Feb. 13, Check No. 599 to H. J. Abbott, P. M., stamps.....	2.00
	<hr/>
	1919.99
Balance on March 1	264.34
In Savings Department (from Sept. 15, 1922)	27.66
	<hr/>
	\$2211.99

Program of General Sessions

(Admission by badge)

Officers of the Michigan Schoolmasters' Club, 1923

President—Principal William Prakken, Highland Park.

Vice-President—Dean Bessie E. Priddy, Mich. State Normal College.

Secretary-Treasurer—Mr. L. P. Jocelyn, Ann Arbor.

Members of the Executive Committee—Registrar A. G. Hall, University of Michigan; Professor C. S. Larzelere, Central State Normal School; Principal H. R. Atkinson, Battle Creek.

Wednesday Evening, March 28

8:00 o'clock, Eastern Standard Time

Newberry Hall

Lecture (Illustrated), Professor J. G. Winter, University of Michigan.

Thursday Morning, March 29

Chairman—Principal Wm. Prakken, Highland Park.

9:00 o'clock, Eastern Standard Time

Newberry Hall

1. Short Business Meeting.

2. Conference—"The Teaching Load."

(a) Professor C. O. Davis, University of Michigan.

(b) Principal W. C. Reavis, Chicago University High School.

(c) Principal H. L. Miller, Wisconsin University High School.

11:00 o'clock, Eastern Standard Time

Hill Auditorium

3. Address: "That Mind of Yours," President Marion L. Burton, University of Michigan.

Thursday Afternoon, March 29

3:00 o'clock, Eastern Standard Time

Auditorium, Natural Science Building

Chairman—Professor William A. Frayer.

University Lecture: Charles V and the Spanish Empire, Professor Roger B. Merriman, Harvard University.

4:15 o'clock, Eastern Standard Time

Hill Auditorium

Chairman—Michigan State Supt. T. E. Johnson.

Address: United States Commissioner of Education, J. J. Tigert.

5:45 o'clock, Eastern Standard Time

Michigan Union Banquet Hall

Reception and Banquet for all members of the Michigan Schoolmasters' Club.

The Schoolmasters' Club dinner will be served at the Michigan Union at 5:45 o'clock. As the Banquet Hall of the Union will seat only 500, the members are urged to reserve their tickets in advance, by writing the Secretary, Mr. L. P. Jocelyn, Ann Arbor, Michigan, on or before March 28. Ticket \$1.25. Upon request tables will be reserved for special parties and reunions.

8:00 o'clock, Eastern Standard Time

Concert, Oratorio "The Messiah," Ann Arbor High School chorus of 400 voices and assistant soloists under direction of Mr. George Oscar Bowen.

(Compliments of the University Musical Society). Complimentary to all members of the Schoolmasters' Club who pay their dues for 1923 in advance. Reserved seat tickets for main floor will be sent by mail to all members whose dues are in the hands of the Secretary, L. P. Jocelyn, by March 26. Tickets may also be procured at the Secretary's desk, at headquarters, on Wednesday and Thursday, March 28 and 29.

Friday Morning, March 30

9:30 o'clock, Eastern Standard Time

Hill Auditorium

Chairman—Principal Wm. Prakken, Highland Park.

Secretary—L. P. Jocelyn, Ann Arbor.

1. Business Meeting.

- (a) Reports of Committees appointed on Thursday.
- (b) Report on Modern Language Study, Professor A. G. Canfield.
- (c) Report of Committee on Experimental Studies and Investigations, Principal George Murdock, Detroit.
- (d) Report of Committee on Teachers' Agencies, Supt. L. A. Butler, Ann Arbor.

11:00 o'clock

- 2. Address: The Northward Course of Empire, Vilhjalmur Stefansson.

To insure their seats, members of the Club should be in the Auditorium by 10:30 o'clock.

Michigan Federation of Teachers' Clubs

Friday Afternoon, March 30

4:00 o'clock, Eastern Standard Time

Alumni Hall

Chairman—D. C. Heathcote, Kalamazoo.

Annual Meeting.

4:00 o'clock

Hill Auditorium

Joint Meeting with the Academy of Science

Address: Proofs of Evolution. Professor William B. Scott, Princeton University.

4:15 o'clock

Newberry Hall

Lecture: Professor Robinson, Johns Hopkins University.

Saturday, March 31

12:00 o'clock Noon

Barbour Gymnasium

Annual Luncheon of Women's Leauge. All Alumnae are invited to attend. Tickets, \$1.00, may be obtained from the office of the Dean of Women, and all reservations should be made by Thursday, March 29. The proceeds are to go to the University League Building Fund.

Program of Conferences

RURAL EDUCATIONAL CONFERENCE

Wednesday, March 28

Michigan Union, Room 319

5:30 P. M. Annual Banquet.

Chairman—C. K. Searles, University of Michigan.

Facts about Consolidation in Michigan

1. History and Progress of Consolidation in Michigan, Miss Nellie Dietrich, Dept. of Public Instruction, Lansing.
2. The Curriculum of the Consolidated School, Frank E. Ellsworth, Director, Training School, Kalamazoo.
3. The Transportation Problem, Paul J. Rood, Supt. Consolidated School, Goodrich.
4. The Model School Building, George N. Otwell, Supt. of Rural Division, Lansing.
5. Training for Teachers in Consolidated Schools, M. S. Pittman, Professor of Rural Education, Ypsilanti.
6. The Social Significance of the Consolidated School, Ernest Burnham, Director of Rural Education, Kalamazoo.

CLASSICAL CONFERENCE

Wednesday Evening, March 28

8:00 o'clock

Auditorium, Newberry Hall

Chairman—Frances J. Brown, Northwestern High School, Detroit.

Vice-Chairman—Alicent Holt, Central High School, Grand Rapids.

Secretary—Dorothy M. Roehm, Northwestern High School, Detroit.

1. The Basilica near the Porta Maggiore (Illustrated) Dr. J. G. Winter, University of Michigan.

Thursday Noon, March 29

Luncheon

12:15 o'clock

In the parlors of the Congregational Church

A social hour with Professor Francis W. Kelsey as chairman and brief talks by Dr. Hugh Cabot, Dean of the College of Medicine, University of Michigan; Professor David M. Robinson, Johns Hopkins University; Miss Jean Hamilton, Dean of Women, University of Michigan. Tickets, 75 cents, can be secured at door.

Thursday Afternoon, March 29

Auditorium, Newberry Hall

(Admission by badge)

2:15 o'clock

2. A Comparison of Cicero's Catilinarian Orations as Spoken and as Written. Albertus J. Rooks, Dean of Calvin College, Grand Rapids.

CLASSICAL CONFERENCE—Continued

3. Why are there not enough trained teachers of Latin to meet the demands?
Report on a recent questionnaire as to the reasons for decreased study of Latin in college, possible remedies, means of better articulating high school and college work, and the kind of work most helpful in the preparation of teachers, Principal L. L. Forsythe, Ann Arbor.
4. The Reading Content of the Latin Course for Secondary Schools.
Round table discussion.

4:15 o'clock

Auditorium, Newberry Hall

5. University Lecture. I. Classical Sites in Western Asia Minor.—Laodicea, Hierapolis, Sardis, Pergamum.* Professor David M. Robinson, Johns Hopkins University.

Friday Afternoon, March 30

Auditorium, Newberry Hall

2:00 o'clock

(Admission by badge)

6. Brief Business Meeting.
7. Aspects of the Roman Campagna (Illustrated), Eugene S. McCartney, University of Michigan.
8. The Place of Latin in the High School, Geo. E. Myers, Professor of Vocational Education, University of Michigan.
9. How Can a Boy Best Prepare for College? Professor Mortimer E. Cooley, Dean of the Colleges of Engineering and Architecture, University of Michigan.
10. The Classics and English Literature. Professor James H. Hanford, University of Michigan.

4:15 o'clock

Auditorium Newberry Hall

11. University Lecture II. Classical Sites in Western Asia Minor—Smyrna, Colophon, Ephesus, Priene, Meletus.* Professor David M. Robinson, Johns Hopkins University.

* Illustrated

ENGLISH CONFERENCE**Thursday Afternoon, March 29**

Pattengill Auditorium, High School

(Admission by badge)

1:30 o'clock

Chairman—Alice Louise Marsh, Southwestern High School, Detroit.
Secretary—Leila Pike, Traverse City.

1. Visual Education and the Study of Literature (Illustrated by films), Edwin H. Reeder, Dept. of Visual Education, Detroit.
2. Stage Craft (Illustrated by models and lighting), George Styles, Dept. of Stage Craft, Detroit Public Schools.
3. Exhibition of stage settings for various plays, worked out by high school students in Detroit and Grand Rapids.

Friday Afternoon, March 30

(Admission by badge)

Pattengill Auditorium, High School

1:30 o'clock

4. Business Meeting:
 - (a) Election of officers.
 - (b) Report on Progress of Organization of Michigan Council of Teachers of English, George Starr Lasher, University
5. Reading: Mr. Robert Frost, the poet, University of Michigan.

PUBLIC SPEAKING CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

University Hall

1:30 o'clock

Chairman—H. B. Ewbank, Albion College.

Secretary—H. D. Hopkins, Saginaw.

1. Business Meeting.
2. Aims in Dramatic Production, Professor I. A. Beddow, Department Reading and Speech, Central State Normal.
3. Problems of the High School Director, Miss Mabel Toumey, Detroit Northern High School.
4. Linking the School and the Public, Mr. Daniel Quirk, Director Ypsilanti Players.
5. Dramatic Contests and Festivals, Professor Richard Hollister, University of Michigan.
6. Presentation of a One Act Play, pupils of Saginaw High School. One half hour is allotted for each topic, the speaker being limited to twelve minutes and the remaining time reserved for group discussion.

Friday Afternoon, March 30

(Admission by badge)

University Hall

1:30 o'clock

7. Business Meeting concluded.
8. The Content of a Public Speaking Course, D. J. Heathcote, Kalamazoo High School.
9. The Status of Public Speaking in Our Schools, Miss Laura Shaw, Western State Normal.
10. Public Speaking and the School Program, Administrative Possibilities. Principal H. M. Rosa, River Rouge.
11. Do Contests Pay? Principal R. W. Ward, Mt. Clemens.
12. Reports of Organizations:
Michigan High School Debating League—Carl Brandt.
Michigan High School Oratorical Ass'n.—E. E. Gallup.
One half hour is allotted for each topic, the speaker being limited to twelve minutes and the remaining time reserved for group discussion.

HISTORY CONFERENCE**Thursday Afternoon, March 29**

Room C-3, High School

(Admission by badge)

1:30 o'clock

Chairman—Professor William A. Frayer, University of Michigan.

1. What the Williamstown Institute of Politics Offers Teachers of History, Professor Jesse S. Reeves, University of Michigan.
2. Some Curious Anticipations of the Great War, Dr. Preston Slosson, University of Michigan.

3:00 o'clock

Natural Science Auditorium

(Public Lecture)

3. Spain Under Charles V, Professor Roger B. Merriman, Harvard University.

Friday Afternoon, March 30

(Admission by badge)

Room C-3, High School

4. The Possibilities of a "Survey Course," Miss Gertrude Brock, Ann Arbor High School.
5. The Historian as a Scholar and as a Prophet, Professor Wynand Withers, Hope College.
6. What Constitutes Sound Preparation for the Teaching of History? Mrs. Dorothy Leonard Judd, Central High School, Grand Rapids.
7. Recent Tendencies in the Teaching of the School Sciences in the Secondary Schools, Mr. S. M. Levin, Junior College, Detroit.
8. Some Difficulties Confronting the Inexperienced Teacher of History, Miss Margaret E. Burnham, Western State Normal

PHYSICS AND CHEMISTRY CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

West Lecture Room, Physics Building

1:30 o'clock

Chairman—C. W. Chapman, Michigan Agricultural College.

Secretary—W. N. St. Peter, University of Michigan.

1. The Practical Application of the Gram Molecular Volume in the Classroom, A. H. Beebe, Highland Park High School.
2. Results of Standardized Tests in Physics, R. J. Coats, Detroit Central High School.
3. Radio, its Theory and Demonstration, Professor N. H. Williams, University of Michigan; W. C. Marburger, Battle Creek
4. Short Business Meeting.
5. Report of the Committee on minimum requirements in Chemistry, Professor D. M. Lichty, University of Michigan.
6. Report of the Committee on minimum requirements in Physics, Professor D. L. Rich, University of Michigan.

Friday Afternoon, March 30

Lane Hall

12:15 o'clock

Physics-Chemistry Luncheon. Applications should be made to W. N. St. Peter.

1:30 o'clock

7. Atomic Structure—The Rutherford Atom, Professor S. L. Bigelow, University of Michigan.
8. Atomic Structure—The Lewis-Langmuir and the Bohr Atoms, Professor E. F. Barker, University of Michigan.
9. A series of demonstration experiments in Physics and Chemistry by the High Schools, Normals and Colleges of the State.

MATHEMATICS CONFERENCE**Thursday Noon, March 29**

Baptist Church

12 o'clock

Mathematics Luncheon. Price 85 cents. Members of the Conference, members of the Mathematical Association of America and others interested are invited to attend and get acquainted.

Note—Plates may be reserved by mailing a post card to W. W. Denton, 1014 Cornwell Pl., Ann Arbor, by March 25.

Thursday Afternoon, March 29

(Admission by badge)

Room B, Law Building

1:30 o'clock

Chairman—Harold Blair, Western State Normal.

Secretary—Jane L. Matteson, State Normal College.

1. Prerequisites in Mathematics for College Freshmen, Professor A. E. Lampen, Hope College.
2. Some Difficult Points in Calculus Teaching, Professor E. R. Sleight, Albion College.
3. The General Aims of the Mathematical Association and the Monthly, Professor W. B. Ford, University of Michigan.
4. Organization of a State section of the Mathematical Association of America.

Note—The meeting of Thursday Afternoon will depart from the usual custom in that it will be devoted to the field of collegiate mathematics, and will have its culmination in the organization of a state section of the Mathematical Association of America. High School teachers of mathematics, however, are urged and invited to attend and to participate in the discussions, and it is hoped that they will find it both interesting and stimulating.

Friday Afternoon, March 30

(Admission by badge)

Room B, Law Building

1:30 o'clock

5. A Course in Generalized Mathematics for the Ninth and Tenth Grades, Principal W. H. Cain, Western State Normal High School.
6. Some Approximate Constructions in Elementary Geometry, Professor Theodore R. Running, University of Michigan.
7. The Function Concept in Elementary Mathematics, Mr. Russell V. Allman, Northern High School, Detroit.
8. Discussion led by Professor John F. Barnhill, Michigan State Normal College.
9. Business meeting and election of officers.

BIOLOGY CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

Science Building, Room F-214

Chairman—Theodosia H. Hadley, Western State Normal.

Secretary—Elizabeth Sundstrom, Western High School, Detroit.

1. The Content and Method in High School Biology, S. A. Courtis, Dean of Teacher's College, Detroit. 45 minutes.
2. Discussion of the paper led by Miss Lida Rogers, Holland, 15 minutes.
3. The Background for Biological Teaching, Professor William E. Praeger, Professor of Biology, Kalamazoo College, 45 minutes.
4. Discussion of the paper led by Miss L. Lenore Conover, Teachers' College, Detroit, 15 minutes.

Secure your tickets for the luncheon of Biologists from the Secretary.

Friday Noon

Luncheon for Biologists. Botany Room B-100.

Friday Afternoon, March 30

Room F-214, Natural Science Building

2:00 o'clock

5. Endocrine Factors in Human Development and Behavior; Race Betterment Foundation, Wilhelmina E. Key, Battle Creek. 45 minutes.
6. Discussion of the paper led by Miss Grace Ellis, Junior College, Grand Rapids, 15 minutes.
7. Business Meeting.

COMMERCIAL CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

Room C-17, High School

2:00 o'clock

Chairman—J. C. Howell, Detroit.

Vice-Chairman—Minnie Clark, Highland Park.

Secretary—Miriam O. Barton, 216 N. Washington St., Ypsilanti.

1. Address: Commercial Education, Mr. Lee H. Bierce, Secretary Grand Rapids Association of Commerce.
2. Advancement of Commercial Education within Recent Years, Mr. S. S. Purdy, Saginaw.
3. Demand from the Employer's Standpoint, Mr. Peter Cummins, Detroit.
4. Discussion.
5. Business.

A commercial luncheon will be served at 12:15 o'clock. Notice of place will be given to those who send their reservations to the secretary, not later than March 22.

ART CONFERENCE

Luncheon, Michigan Union, 12:00 o'clock Friday. Notify Mrs. C. C. DeWitt, 216 N. Washington Street, Ypsilanti, of intention to attend.

Friday Afternoon, March 30

(Admission by badge)

Room A, Alumni Building

2:00 o'clock

Chairman—Alice Viola Guysi, Supervisor of Art, Detroit.

Secretary—Mrs. C. C. DeWitt, Supervisor of Art, Ypsilanti.

1. Business meeting; election of officers.
2. American Art for American School Children,* Assistant Professor Bruce M. Donaldson, acting head of Department of Fine Arts, University of Michigan.
3. Hans Christian Andersen Festival.
Puppets and Stories, Eloise Ramsey, Instructor in Dramatics, Children's Literature, and Story Telling, Detroit Teachers' College. Hazel Swan, Critic Teacher, Detroit Teachers' College.

*Illustrated

HOME ECONOMICS CONFERENCE**Friday Afternoon, March 30**

Chairman—Winifred S. Gettemy, M. A. C.

Secretary—Louise B. Wilson, Cass Technical High School, Detroit.

(Admission by badge)

Luncheon, 12:30 o'clock

Joint Meeting of Vocational Educational Association and Home Economics Association.

Room B-1, High School

1:30 o'clock

1. Need for the Reorganization of College Home Economics Courses, Miss S. Deboran Haines, State Normal College.
2. The Future for Home Economics, Mrs. Louise H. Campbell, Dean Home Economics Dept., Michigan Agricultural College.
3. Round Table, led by Miss Ruth Freegard, State Superintendent of Home Economics.

Reports from each of the Districts.

(a) Results of the Fall meetings.

(b) Suggestions for changes.

(c) Definite plans for 1923.

EDUCATIONAL PSYCHOLOGY CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

Tappan Hall Lecture Room

1:30 o'clock

Chairman—G. L. Brown, Northern State Normal.

Secretary—T. S. Henry, Western State Normal.

1. The Intelligence of Prospective Teachers, Professor Elmer H. Wilds, Western State Normal School.
2. The Concept of Adult Mental Age, Professor Guy M. Whipple, University of Michigan.
3. Segregation and Its Effects upon Morale, Miss Helen Davis, Director of Measurements and Special Education, Jackson.
4. A Proposed Test in Geography, Professor H. H. Foster, Michigan State Normal College.

HIGH SCHOOL LIBRARIES CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

Room 110, General Library

2:00 o'clock

Chairman—Miss Agnes Snover, Northern High School, Detroit.

Secretary—Miss Edith Thomas, University of Michigan Library.

1. Books of Science for High School Libraries, Mr. B. J. Rivett, Principal, Northwestern High School, Detroit.
2. The Auditorium and the School Library, Miss Gilday, Library Teacher, Pattengill School, Detroit.
3. A Prevocational Course Recommended for Students Planning to take Library Training, Miss Martha Pritchard, Supervising Instructor in charge of School Libraries, Detroit.
4. Business Meeting.

Friday Afternoon, March 30

12:30 o'clock

Luncheon, Michigan Union. If you plan to attend, please notify Miss Thomas by March 26.

5. Battle of the Books, Mr. E. L. Miller, Supervising Principal of High Schools, Detroit.
6. Modern and Contemporary Drama for High School Libraries, Professor O. J. Campbell, University of Michigan.
7. Round Table. Miss Poray, Miss King.
Training Course for Student Assistants.
8. Business meeting concluded.

GEOGRAPHY AND GEOLOGY CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

Room G-217, Natural Science Building

1:30 o'clock

Chairman—A. R. Gilpin, Northwestern High School, Detroit.

Secretary—D. H. Davis, University of Michigan.

1. The Passing of the Kentucky Mountaineer (Illustrated), D. H. Davis, University of Michigan.
2. The Relationship of Geography to Art, M. S. W. Jefferson, Michigan State Normal College.
3. A Geographic Analysis of Shawinigan Falls, Alice Camerer, Detroit Teachers' College.
4. Suggestions for Geography Instruction in the Seventh Grade, Edna Nash, Jackson.
5. Natural Regions of Michigan, C. P. Sauer, University of Michigan.
6. The Climate of Canada, F. H. Howe, Wyandotte.
7. An Educational Film, E. H. Reeder, Supervisor of Visual Education, Detroit.

Friday Afternoon, March 30

1:30 o'clock

8. The Use of Government Publications in Economic Geography, K. C. McMurray, University of Michigan.
9. The Geographic Unit, L. H. Wood, Western State Normal School.
10. The Relation of Geography to a Vocational Education, Burt Hudgins, Detroit Junior College.
11. Geographic Factors in Trade, C. E. Griffin, University of Michigan.
12. The Place of Geography in the Social Science Curriculum, Arthur Dondineau, Supervisor of the Social Sciences, Detroit.
13. Informal Initial and Final Tests in Geography, Burton Barnes, Detroit.
14. The Chemical Industry of Wyandotte, F. W. Frostic, Wyandotte.

ADMINISTRATIVE TEACHERS' CONFERENCE

(House Principals, Grade Principals, Session Room Teachers, and all High School Principals interested)

Thursday Afternoon, March 29

(Admission by badge)

Room B-8, High School

1:30 o'clock

Chairman—A. F. Jones, Northwestern High School, Detroit.

Secretary—Miss Emma C. Weitbrecht, Ann Arbor.

1. Control and Direction of School Activities, L. L. Forsythe, Principal, Ann Arbor High School.
2. Problems Connected with Students Leaving School before Graduation, Miss Cleo Murland, University of Michigan.
3. High School Organization, E. L. Miller, Principal Northern High School, Detroit.

AGRICULTURAL CONFERENCE**Thursday Afternoon, March 29**

(Admission by badge)

Room C, Law Building

1:30 o'clock

1. President's Address . . . Harry G. Taft, Allegan,
2. What the Western Normal is doing for Rural Education, Professor Ernest Burnham, Western State Normal.
3. What the Central Normal is doing for Rural Education, Professor Myron A. Cobb, Central State Normal.
4. What the State Normal is doing for Rural Education, Professor M. S. Pitman, Michigan State Normal College.
5. What M. A. C. is doing for Rural Education, Professor W. H. French, Michigan Agricultural College.

INDUSTRIAL EDUCATION CONFERENCE**Friday Afternoon, March 30**

(Admission by badge)

Room C-1, High School

2:00 o'clock

Chairman—Frank M. McCrea, Director Vocational Education, Muskegon.

Secretary—

1. Address: The Present Status of Manual Arts and Vocational Education in America.
Speaker to be announced later.
2. Report of State Committee on Manual Arts, Industrial and Vocational Education:
 - Sec. 1. The History and Purpose of the Committee, F. H. McCrea, Muskegon.
 - Sec. 2. Basic Assumptions Agreed upon as a Basis for Constructing Courses of Study, Mr. Price.
 - Sec. 3. The Preliminary Report as made in March, 1922, Schoolmasters' Club, and adopted at that time.
 - Sec. 4. Courses Approved and Recommended to the State for Publication, Mr. Mason.
 - Sec. 5. Acknowledgements, Mr. Hollenbach.
 - Sec. 6. Unfinished Work, Mr. Bedell.
3. Six Round-table Conferences:
 1. Auto Mechanics—Chairman, George Correll, Flint.
 2. Cabinet Making—Chairman, George Frazee, Grand Rapids.
 3. Machine Shop—Chairman, G. H. Snaddon, Detroit.
 4. Household Mechanics—Chairman, E. L. Bedell, Detroit.
 5. Elementary Electricity—Chairman, George Willoughby, Saginaw.
 6. General Continuation Subjects—Ethel Wooden, Pontiac.
4. Discussions in each conference led by:
 1. R. F. Guyer, Muskegon.
 2. Benjamin Dykhuizen and Herman Holmberg, Grand Rapids.
 3. E. Lewis Hayes, Detroit.
 4. D. B. Fox, Jackson.
 5. F. S. Everest, Battle Creek.
 6. Mrs. Genevieve Knight Bixler, Muskegon.

INDUSTRIAL EDUCATION CONFERENCE—Continued

Michigan State Society for Vocational Education will have its annual luncheon Friday, March 30, at 12:15, Michigan Union, with brief address by R. L. Cooley, Director of Construction Schools, Milwaukee, Wis.

STATE PHYSICAL EDUCATION CONFERENCE

(Admission by badge)

Chairman—Floyd A. Rowe, Lansing.

Secretary—

Thursday Afternoon, March 29

Waterman Gymnasium

2:30 o'clock

Fielding H. Yost, Chairman

1. A discussion of football, basketball, baseball, and track rules will be conducted in the form of a question box. Persons desiring to ask questions regarding any or all rules may do so by writing them out and handing them in. The questions will be answered by Mr. Yost, Mr. Mather, Mr. Fisher, and Mr. Hahn, of the University.

In case a subsequent meeting is desirable, the time and place will be announced at the close of the Thursday afternoon meeting.

Barbour Gymnasium

2:30 o'clock

Miss Marion O. Wood, Chairman

2. A unique discussion of girls' basketball rules and officiating will be conducted by Miss Sherman of Detroit.
3. The teams will play an exhibition game, during which several referees will officiate. As a foul is called the official will explain the reason for calling it.
4. After the conclusion of the game spectators will discuss with the officials the various fouls.

Those wishing to take part in this discussion will kindly bring a whistle, pencil, and notebook.

Hill Auditorium

4:05 o'clock

Hon. Thos. E. Johnson, Chairman

Music

5. Address—Hon. J. J. Tigert, United States Commissioner of Education.

Thursday Evening, March 29

7:00 o'clock

Waterman Gymnasium

6. Class Band C. Basketball. Championship Eliminations.

Friday Morning, March 30

Waterman Gymnasium

10:00 o'clock

Frank A. Long, Chairman

7. Meeting of the Michigan Society of Physical Education.
8. Election of Officers.
9. Election of Society representative to the American Physical Education Council.

Friday Afternoon, March 30

Waterman Gymnasium

1:30 o'clock

C. E. Brewer, Chairman

10. Round Table Meeting.

Municipal Recreation Problems.

School Superintendents are particularly invited to attend and take part in this meeting.

Barbour Gymnasium

1:30 o'clock

Miss Ethel Perrin, Chairman

11. Discussion of Women's and Girl's athletics.

3:00 o'clock

Elmer Mitchell, Chairman

12. A demonstration of the new game, "Speed Ball." This game was originated by Mr. Mitchell and seems to be particularly adaptable for use in the Junior High School Program.

Sarah Caswell Angell Hall

4:05 o'clock

Dr. John Sundwall, Chairman

Music

Introduction by C. E. Brewer.

13. Address—Dean James E. Rogers, New York.

Probably no one in America is as well qualified to discuss matters pertaining to leisure time activities of children and adults as is Dean Rogers. Everyone is welcome.

EVENING SCHOOL PRINCIPALS' AND TEACHERS' CONFERENCE**Friday Morning, March 30**

Pattengill Auditorium, High School

9:00 o'clock

Chairman—J. W. Slaughter, Lansing.

Discussion of matters of interest to evening school teachers and administrators.

MUSIC CONFERENCE**Thursday Noon, March 29**

Chairman—Mr. Charles A. Sink.

General Topic: "Music in the Schools."

The Music Conference will meet at the Michigan Union at 12:00 o'clock, Thursday noon, March 29, for luncheon. The following program will be given at the close of the luncheon:

1. Community Music and Music in the Schools, William W. Norton, Executive and Music Organizer, Flint Community Music Association.
2. The Junior High School and Its Music Problems, R. W. Parsons, Director of Music, Highland Park.
3. Measurements in Music, S. A. Courtis, Director of Instruction, Teacher Training and Research, Detroit Public Schools.
4. Some Phases of Music Appreciation, Earl V. Moore, Head of Theory Department, University School of Music.
5. Discussion will be led by George Oscar Bowen, Head of Public School Music Department, University School of Music, and Director of Music in the Ann Arbor Schools.

Thursday Evening, March 29

Hill Auditorium

8:00 o'clock

Annual Concert of the Ann Arbor High School Chorus of 400 voices, with assisting soloists.

"The Messiah".....George Frederick Handel

MODERN LANGUAGE CONFERENCE**Thursday Afternoon, March 29**

Luncheon at 12:15 at the Michigan Union (75 cents). Those expecting to be present are requested to notify the secretary, Professor A. G. Canfield. A business meeting of the Michigan Association of Modern Language Teachers will be held after the luncheon.

2:30 o'clock

Room 203, University Hall

Chairman—Miss Marion L. Jennings, Union High School, Grand Rapids
Secretary—Professor A. G. Canfield, University of Michigan.

1. A Classical Background for the Student of Modern Languages,
Miss Amy L. Broome, Junior College, Grand Rapids.

Discussion: For French, Mr. Emile Fave, Northwestern High School, Detroit.

For Spanish, Mr. Norman Willey, University of Michigan.

Friday Afternoon, March 30

(Admission by badge)

Luncheon at 12:15 at the Michigan Union. Those expecting to be present are requested to notify the secretary, Professor A. G. Canfield.

2:00 o'clock

Room 203, University Hall

2. Some overlooked facts in First Year French, Mr. Charles S. Carry, University of Michigan.
3. Question Box. Questions submitted to the Secretary in advance will be discussed. If the questions are submitted early enough they will be referred before the meeting to teachers of experience for their answers.

Members of the Schoolmasters' Club, 1923

Members for Twenty or More Consecutive Years

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Chute, H. N.	NORTHERN	CENTRAL
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Wines, L. D.	Corns, J. H.	UNIVERSITY OF
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DETROIT	KALAMAZOO	Dow, E. W.
Arbury, F. W.	COLLEGE	Finney B. A.
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DETROIT, CASS	KALAMAZOO,	Markley, J. L.
TECHNICAL	WESTERN	Newcombe, F. C.
Cooke, C. S.	NORMAL	Ziwet, Alex.
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AND JUNIOR	LANSING	Ross, De Forrest
COLLEGE	Gallup, E. E.	YPSILANTI,
Bates, F. O.	MARQUETTE,	NORMAL COLLEGE
Hull, Isabella H.	NORTHERN	Allison, Clara J.
Irwin, F. C.	NORMAL	D'Ooge, Benj. L.
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Pettee, Edith E.		Peet, B. W.

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Schaible, Ida M.	Farnsworth, Mary F.	Strubel, R. H.
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Tinkham, Lona C.	AND JUNIOR	NORTHEASTERN
Weinmann, Louise	COLLEGE	Cooper, L. G.
Wines, L. D.	Bates, F. O.	Fyan, Lila E.
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Miner, Mary L.
Tanis, J. E.

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Porter, J. E.
Rivett, B. J.
Roper, Gertrude L.
Wentworth, W. H.

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Whitney, Edward

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Marsh, Alice L.
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Liskow, Julia M.
Meiser, Augusta B.
Parker, Flora E.
Pitts, Dora H.
Waples, Marcia P.
Wilkinson, A. O.
Wiltzie, Katherine D.
Woodward, Mabel C.

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Bessey, E. A.

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Wellwood, J. E.

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Hulst, Cornelia, S.

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Margah, Katherine C.
Prakken, Wm.
Smith, R. H.
Van Loon, G. E.

HILLSDALE

Mauck, J. W.

JACKSON

Marsh, E. O.

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COLLEGE

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Williams, C. B.

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Everett, J. P.

LANSING

Gallup, E. E.

LINDEN

Burr, C. J.

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NORTH'N NORMAL

Lewis, W. F.
Spooner, C. C.

MONROE

Cantrick, G. T.
Gilday, Selma

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Warriner, E. C.

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Warner, W. W.

ST. JOHNS

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SUPERIOR, WIS.

Wade, C. G.
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Bonner, Campbell
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Canfield, A. G.
Crittenden, A. R.
Cross, A. L.
Dow, E. W.
Edmonson, J. B.
Finney, B. A.
Ford, W. B.
Hall, A. G.
Karpinski, L. C.
Kelsey, F. W.
Kraus, E. H.
Lichty, D. M.
Markley, J. L.
Meador, C. L.
Newcombe, F. C.
Rich, D. L.
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Scott, F. N.
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Winkler, Max
Ziwet, A.

WYANDOTTE

Frostic, F. W.

YPSILANTI

Hardy, Carrie A.
Ross, DeForrest

YPSILANTI

CLEARY'S BUS. COL.
Cleary, P. R.

YPSILANTI, NOR-

MAL COLLEGE

Allison, Clara J.
D'Ooge, B. L.
Gorton, F. R.
Harvey, N. A.
Lott, H. C.
Lyman, E. A.
McKay, F. B.
McKenny, Chas.
Norris, O. O.
Pearce, W. H.
Peet, B. W.
Pray, C. E.
Priddy, Bessie L.

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 Marshall, C. E.
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 Buck, Gertrude
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 Reed, J. L.
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 Warren, A. C.
- ALBA
 Scales, Madeline
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 Aldrich, Blanche W.
 Harton, W. C.
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 Lorah, N. F.
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 Parker, Gladys
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 Ewbank, H. I.
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 Lee, K. O.
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 Randall, D. L.
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 Shultis, F. W.
 Sleight, E. R.
 Sleight, Norma
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 Hamilton, R. W.
 Howie, J. M.
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 MacCurdy, H. M.
 McKenzie, Ruby
 Randels, G. B.
 Van Hoesen, R.
- ALPENA
 Curtis, G. H.
 Stegenga, Constance M.
 Votruba, Minnie F.
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 Anschutz, Irma
 Arbaugh, Dorothy
 Atkins, Edith Emma
- Averill, F. G.
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 Bader, Edith M.
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 Benzin, Lina
 Benzin, Sophie
 Bolgos, Alma
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 Breed, Gertrude T.
 Brock, Gertrude
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 Buell, M. H.
 Burneson, L. W.
 Butler, L. A.
 Butler, Nita L.
 Carlson, Hilda
 Carlton, Ruby
 Chamberlain, Ethel M.
 Chute, H. N.
 Clinton, Anna
 Cole, Elizabeth
 Cooke, Mrs. Emma A.
 Corson, Lenore
 Crittenden, Lucy
 Deters, Carrie
 Dicken, Carrie L.
 Donahue, Eileen
 Donnelly, Sara
 Dowler, Mrs. Harriet
 Duff, Lela
 Duncan, Hulda
 Eberbach, Lynda
 Edmonds, Grace
 Edmonson, Ruth
 Edson, Helen
 Essery, E. E.
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 George, Louise
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 Granville, Robert
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 Hamilton, F. G.
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 Harrington, Margaret
 Hedrick, Ethel
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 Highley, A. M.
 Hoag, Lillian
 Hodson, Catherine E.
 Hooper, Estelle
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 Jocelyn, L. P.
 Johnson, Norma
 Kahoe, Nellie M.
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 Keen, Sarah E.
 Kelly, Florence
 Kingman, J. C.
 Kirchhofer, Marie
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 Lardie, Annette
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 Martens, Caroline
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 Mogk, M. Katherine
 Mueller, Margaret
 Nelson, Agnes
 Nutt, H. D.
 Oates, Elizabeth H.
 O'Brien, Sarah
 Osborn, Lurene
 Parry, Edna D.
 Pfisterer, Matilda
 Prochnow, Marie
 Purfield, Agnes H.
 Reinhardt, Flora
 Reynolds, Jane
 Robison, Blanche
 Robison, Lillian J.
 Robison, Cora
 Rothenberger, Lola
 Russell, Josephine
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 Scoville, Lucile
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 Seeley, Frances

- Seelye, Jennie
Sink, Maude F.
Skillen, Mary
Slauson, H. M.
Smallidge, Clara
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Staeb, Minnie
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Steele, Anna B.
Stitt, A. C.
Sturgis, Christine
Sturgis, Marchie
Sutton, Inez
Taylor, Mary
Thompson, Mary L.
Ticknor, Frances
Tinkham, Lona C.
Trible, Susanne
Van Kleek, Mabel
Volz, Marie D.
Vreeland, W.
Waber, Bertha
Weick, Bertha M.
Weinmann, Louise
Weitbrecht, Emma
Wheeler, Caroline
Whelan, Gladys
Whiteford, Margaret
Whitney, Blanche
Wines, L. D.
Winkler, Ethel M.
Withey, Jean D.
Woessner, Alice
Youell, Anita E.
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McClain, Mrs. A.
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- AUGUSTA
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Garbutt, Mrs. G. E.
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Barker, H. L.
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Huyck, E. E.
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Cooley, Geo. B.
Cooper, Lenna F.
Foster, Nancy
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Key, Wilhemina E.
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Marburger, W. G.
Price, G. G.
- Roth, Linda
Shuart, W. L.
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jorie M.
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- BELLEVUE
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Heilig, Mabel
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Neff, Irwin
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Smith, R.
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Sawyer, Christabel
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Eddy, T. V.
- CENTERVILLE
Hutchins, A. J.
- CASSOPOLIS
Wood, A. H.
- CHARLESTON, ILL.
Harden, Mary
- CHARLOTTE
Brown, F. W.
Thayer, H. F.
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Clark, E. L.
Clark, Mrs. Ethel L.
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- COLDWATER
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- COLON
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- COVERT
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 Lightbody, Wm.
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 Brown, Jessie M.
 Brown, J. S.
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 Gibb, H. L.
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 Hull, Isabella H.
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 Metcalf, Jessie
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 Sargeant, Charlotte H.
 Schoonover, R. H.
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 Selden, J. P.

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 Henze, Paula
 Klein, Adele L.
 Mann, L. B.
 Merriam, A. R.
 Pettee, Edith E.
 Putnam, R. R.
 Remmert, W. F.
 Strubel, R. H.
 Yeager, C. W.
 DETROIT, HIGH
 SCHOOL OF COM.
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1892	E. C. Thompson	None	H. M. Slauson	H. M. Slauson
1893	B. L. D'Ooge	None	E. C. Goddard	E. C. Goddard
1894	B. L. D'Ooge	J. H. Drake	E. C. Goddard	E. C. Goddard
1895	W. H. Butts	D. E. Smith	E. C. Warriner	E. C. Warriner
1896	J. O. Reed	S. O. Hartwell	E. C. Warriner	E. C. Warriner
1897	S. O. Hartwell	W. G. Corburn	E. C. Goddard	E. C. Goddard
1898	E. C. Goddard	Florence Milner	D. E. Smith	L. S. Norton
1899	E. C. Warriner	Florence Milner	W. H. Sherzer	L. S. Norton
1900	W. H. Sherzer	E. T. Austin	J. H. Harris	R. S. Garwood
1901	J. H. Harris	A. J. Volland	H. M. Slauson	R. S. Garwood
1902	A. J. Volland	Julia A. King	H. M. Slauson	R. S. Garwood
1903	R. S. Garwood	B. L. D'Ooge	L. P. Jocelyn	J. P. Everett
1904	B. L. D'Ooge	J. L. Snyder	L. P. Jocelyn	J. P. Everett
1905	J. L. Snyder	Hattie Taylor	L. P. Jocelyn	J. P. Everett
1906	A. S. Whitney	Edith Atkins	L. P. Jocelyn	J. P. Everett
1907	David Mackenzie	Lucy Sloan	L. P. Jocelyn	J. P. Everett
1908	W. A. Greeson	Florence Milner	L. P. Jocelyn	J. P. Everett
1909	L. H. Jones	Edith Kimball	L. P. Jocelyn	L. P. Jocelyn
1910	E. G. Lancaster	Cornelia S. Hulst	L. P. Jocelyn	L. P. Jocelyn
1911	J. O. Reed	Harriette A. Bishop	L. P. Jocelyn	L. P. Jocelyn
1912	W. A. Morse	Jessie S. Gregg	L. P. Jocelyn	L. P. Jocelyn
1913	H. N. Chute	Caroline E. Britten	L. P. Jocelyn	L. P. Jocelyn
1914	J. M. Frost	Gertrude T. Breed	L. P. Jocelyn	L. P. Jocelyn
1915	D. B. Waldo	Clara J. Allison	L. P. Jocelyn	L. P. Jocelyn
1916	J. W. Mauck	Mary E. S. Gold	L. P. Jocelyn	L. P. Jocelyn
1917	C. O. Davis	Nancy S. Phelps	L. P. Jocelyn	L. P. Jocelyn
1918	W. W. Warner	Anna S. Jones	L. P. Jocelyn	L. P. Jocelyn
1919	E. O. Marsh	Sadie M. Alley	L. P. Jocelyn	L. P. Jocelyn
1920	C. C. McKenny	J. B. Davis	L. P. Jocelyn	L. P. Jocelyn
1921	W. E. Praeger	Helen B. King	L. P. Jocelyn	L. P. Jocelyn
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TABLE OF CONTENTS

	PAGE
Officers of the Club, 1886-1924.....	3
Officers of the Club, 1924.....	4
The Influence of Attitudes on Health..... <i>Dr. John Sundwall</i>	7
The Influence of Certain Non-Intellectual Factors Upon the Scholarship of College Freshmen..... <i>Theo W. H. Irion</i>	15
Needed,—One Year of Geography in the High School.... <i>R. D. Calkins</i>	24
The Correlation of Health Education and Biology.... <i>Prof. Jessie Phelps</i>	32
Synopsis of Business Meeting.....	37
Report of Committee on Resolutions.....	37
Report of the Nominating Committee.....	38
Report of the Committee on Investigations of Research Work in High Schools	39
Resolution of Prof. C. O. Davis.....	44
Report of Committee on Adjustment of Credits.....	44
Treasurer's Report	45
Program of the 1924 Meeting.....	47
Members of the Schoolmasters' Club, 1924.....	63
Advertisements	77

Michigan Schoolmasters' Club

PROCEEDINGS OF THE FIFTY-NINTH MEEETING, HELD AT
ANN ARBOR, APRIL 3-4, 1924

THE INFLUENCE OF ATTITUDES ON HEALTH

DR. JOHN SUNDWALL, UNIVERSITY OF MICHIGAN

Our most difficult contraventions to progress in public health are the attitudes of people towards their own body and their health.

More than 300,000 children, under five years of age, die annually in the United States. Such are the hazards of early childhood. Of the 22,000,000 of our public school children 16,000,000, or 75% have physical defects which are potentially or actually detrimental to health and efficiency. One third of our young men failed to pass the draft examination.

The total number of deaths in the United States each year, is approximately 1,500,000. One may multiply these numbers by ten in order to arrive at some idea of the total annual morbidity or sickness. The annual economic loss as a result of preventable illness and disease has been estimated to be approximately \$5,000,000,000. We must not overlook the widespread discontentment, unhappiness, sorrow and misery which are the invariable accompaniments of ill health.

The tragic thing, however, is that we have at our command, even at the present moment, sufficient knowledge pertaining to health promotion and disease prevention which, if it were intelligently applied by our people, would prevent at least from one half to three fourths of our national mortality and morbidity.

Thus we see the price which is being paid in the United States because of our prevailing attitudes towards health. The trouble is that the attitude of most people relative to health lies almost wholly within the domain of the emotions. The fact of the matter is that the emotions control most in-

terests and activities of the masses. With people at large, most impressions are reacted upon emotionally. To think is laborious; to feel is intuitive and therefore easy. We know that much, perhaps most, of the widespread destructive agitation against the conformities of society, that most of the unhappiness, misery, poverty and suffering of people, are due in the very largest measure to emotional instability. Nothing unfits man more for our highly complex society than his tendency to react emotionally to practically all incoming impressions. The causes of the widespread maladjustments now seen in every society must be sought after largely within the realm of the emotions.

While society at large suffers immeasurably from this extreme tendency of people to do things because they feel that way, not because it is the intelligent thing to do, personal health is affected ten-fold. The schooling of the emotions, therefore, must be of greatest concern not only to the medical profession but to all teachers and leaders in society.

Especially do the emotions run riot when it comes to man's attitude towards his body. There is a marked tendency for the emotionally unstable, who makes up such a large element of the Ne'er-do-wells in our society, to fix the blame for his losing fight or his failure on the condition of his health. The resultant introspection breeds neuroses and psychoses. Witness the widespread hysteria, neurasthenia and hypochondria which saturates the society of today.

Again, how easy it is to create these widespread emotional diseases through suggestion. The old medical almanac, that guide to all health of a generation ago, was a masterpiece for generating emotional diseases.

Furthermore, the scientific physician of today realizes that, in the minds of most people, he is the lineal descendent of the priest, and therefore he knows that in the attitudes of most people religion and medicine are closely interrelated. Here again we see the wide and forceful rôle that the emotions and instincts play in matters pertaining to health. The demonological theory of disease still continues to dominate mankind. That ill health and disease are due to the bodily ingress of evil spirits or the chastisement and vengeance of an angered God is the tenet of the ninety and nine. The attitude of abject resignation and total subservience to sickness and to abnormal bodily processes is abundantly prevalent even in our most civilized races.

"So Satan went forth from the presence of Jehovah and smote Job with severe boils from the sole of his foot unto his crown." (I am quoting from Job.) Witness Job's lamentation: "My soul is weary of my life. I will give free course to my complaint. I will speak in the bitterness of my soul. I will say unto God: 'Do not condemn me. Show me wherefore thou contendest with me.'" This has been the reaction of humanity at large to disease; mankind continues even at this late date to inquire into and to protest against God's severity as did Job. How often to-day does the phy-

sician hear someone afflicted with real or imaginary illness say, "Why should this be sent upon me?"

Again, the physician realizes that certain instincts and emotions that have come down through the long process of evolution make the laymen afraid of surgery, to say nothing of surgery as sometimes practiced! Particularly does he fear anaesthetics, cancer, appendicitis and surgery in general which involves the application of the knife. Self-preservation is one of our most dominating instincts and in our ancestors, both recent and remote, the destruction of life was generally witnessed in association with injury, with laceration of tissues and the shedding of blood. With our remote ancestors, the instruments of destruction were the claw and the fang. With our more recent progenitors, it was the knife. No wonder, then, that the knife is instinctively and emotionally abhorred by the layman.

Wherever and whenever emotions dominate, there is found the greatest ignorance. Ignorance on the part of the masses relative to the fundamentals of health promotion and disease prevention is nothing short of appalling. The layman may know other sciences and their applications, but he seldom reads anything relative to the medical sciences, and when he does it is usually in the sensationally caricatured Sunday supplement or in the ubiquitous yellow almanac. As a result, he continues to cherish certain superstitious fixed ideas and prejudices.

Not only has man inherited these emotional reactions towards his own body; his very nature continues to nourish them. Furthermore, his treatment of bodily disorders lies almost wholly within the field of emotions. He diagnoses his own diseases, consults his fellow laymen regarding the treatment, then rushes to the nearest drug store with this interrogation, directed at the soda-fountain clerk: "Say, Doc, what's good for a touch of malaria?" He invariably carries home a bottle of bitters.

Furthermore, any emotional or sentimental appeal that the manufacturers and dispensers of medicine may make relative to the curative efficacy of their wares, the more assured are they of the sales. As the Reverend Forbush has pointed out, "Father John's Medicine" has a religious appeal. Surely a medicine cloaked in the garb of the church is consecrated, and must be a direct contribution from heaven. "Mrs. Winslow's Soothing Syrup" must be the very vigor of child life; it comes from a mother's heart. Does not the long-suffering Lydia Pinkham know infinitely more about women's diseases than science can ever reveal? There is a strong sentiment and emotion for nature's gifts. Hen oil, goose grease, pussy-willow, garden herbs and what were supposed to draw externally like mustard and internally like yeast are highly esteemed. We spend annually in the United States, approximately \$35,000,000 for useless, if not harmful, patent medicine and self treatment. This is more than we spend for higher education.

Again, this dominating emotional attitude on the part of the layman towards all things medical demands "something doing" in treatment. He

must see action. The widespread use of "self-treatment" cathartics bears out this assertion. Even among the ranks of our most intelligent laity, the chiropractor is frequently patronized because when a strong man plays knucklebones on vertebrae, it does seem that there is something happening. If intelligence is so affected by this emotional attitude towards treatment as to seek the services of the mountebank, the naprapopath, the naturpractor, etc., can the less intelligent of our society, which makes up by far the vast majority of the masses, be blamed for its implicit faith in the Oxydonor, in the Electric Belt, in the Oscelloclast of Abrams, in Dr. Booth's Internal Bath Appliance, and the various healing cults and pseudo-scientists who play on the emotions?

The emotional attitude towards the body, its health and its diseases, which prevails in most people at all times, and in our "intelligentia" much of the time, wants some one whom they like to consult and apply treatment. Rarely do they enquire as to who is most proficient to treat disease. "Call in Dr. Blank, he is so nice and kind," is not an unusual bit of advice given and followed. It matters not where Dr. Blank was trained in the art of healing, or how well he profited by that training. The hearty, well-met, good-fellow has an excellent chance to succeed in the practice of emotional medicine, irrespective of his training. People as a rule call in the person whom they like and not the person who is most proficient. Being a good fellow and knowing how to get people to like you are, I am told, part of the basic subjects for study in the pseudo-scientific medical schools.

Intelligent Attitudes

Our problem is to transfer the emotional attitudes towards health to the domain of intelligence. The fact of the matter is that if all people would take an automobile attitude towards their own bodies, then the millenium of public health would soon be forthcoming. One's attitude towards one's automobile lies wholly within the realm of intelligence. Of course, it is true that at times, when one meets up with a blow-out on a dark and rainy night, twenty miles from home, one must assume a temporary violent emotional attitude. At any rate, if as much intelligence were manifested towards the human machine as one hears expressed in the ordinary country garage, relative to the structure, function and care of a flivver, then all would be well with our nation's health. No reasonable owner would expect even a flivver to run more than six months without watchful care, and yet that same flivver owner will let his body go without proper greasing, taking up, or even burning out the carbon until it has gone beyond repairs. As for knocks and squeaks, the common practice is to let them go as long as the old body will run at all. And then it is ready for the scrap heap. Suppose that Jones ran his car daily with one or more flat tires. He would soon be summoned to appear before a "lunacy commission." Yet we

had to reject several hundred thousand men in our draft examinations because of flat feet,—a preventable condition.

When one is dominated with a sane intelligent attitude towards health, then one's body becomes an invaluable machine worthy of consistent and intelligent care. The intelligent attitude demands a human energy-generating motor of the first magnitude. It demands a human "service garage" wherein the human machine can be tested, oiled, over hauled, and wherein instruction regarding the structure, function and care of the human machine can be carried on;—all with a view of building up and keeping up a long, lasting, efficient, smoothly running motor.

One of the greatest contributions that schoolmen can make to the happiness, contentment and prosperity of our nation is to help us transfer completely the emotional attitudes towards health which now prevail to the realm of intelligence. Such should be the main objectives of every school's health service.

THE PHYSICAL WELFARE OF SCHOOL CHILDREN

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Wars have their virtues in that they acquaint the nations participating therein with certain delusions. Perhaps our chief national delusion was that we were a super-nation physically. At any rate, prior to the recent World War, we boasted widely of our super health and strength. We pointed with boastful pride to the fact that our young men returned from the world Olympics wearing the laurels of victory, that the world's championships in boxing, in wrestling and in other competitions involving physical prowess and dexterity were held by Americans. Assuredly these, together with our foot-ball brawn and our baseball prowess witnessed on every side,—all indicated a nation made up of superb physical vigor and efficiency.

The draft examination revealed the appalling fact that more than one third of our young men were so subnormal physically that they had to be rejected from active army life. Think of it! One third of our young men between the ages of twenty-one and thirty-one—that span of life when they should be in the very prime of positive health and physical efficiency—were found to be so defective that they could not withstand the strenuousness of a soldier's out-of-door life.

Assuredly, this draft examination preparatory for the World War acquainted us with one of our greatest national delusions. With a view of rectifying this delusion, some thirty or more states have passed laws making physical education and health supervision compulsory in our public schools. No wonder then, that the health of our school children is becoming of greatest concern to schoolmen and members of School Boards.

While it required the draft examination to make the public at large realize that something must be done to prevent and correct physical subnormality and inefficiency in school children, there was a growing cognizance among school men, for a number of years previous to the war, that more and more attention must be paid to the effective physical welfare, interests and activities for school children. School health examinations had their inceptions in the United States in Boston, 1895; in Philadelphia in 1896; and in New York in 1897. The original purpose of these examinations

was to help the cities' health departments control communicable diseases. It was soon found, however, that the control of communicable diseases, while gravely important, was a minor matter. Physical defects upon physical defects were revealed among school children which, if permitted to continue, would deleteriously affect their future and make it exceedingly difficult for them to make the proper social adjustments in later life. Sufficient physical examinations of school children have already been made to warrant the following conclusions:

*"At least one per cent—200,000 of the 22,000,000 school children in the United States—are mentally defective.

"Over one per cent—250,000, at least, of the children, are handicapped by organic heart disease.

"At least five per cent—1,000,000 children,—have now, or have had tuberculosis, a danger often to others as well as to themselves.

"Five per cent—1,000,000 of them—have defective hearing, which unrecognized, gives many the undeserved reputation of being mentally defective.

"Twenty-five per cent—5,000,000 of these school children—have defective eyes. All but a small percentage of these can be corrected, and yet a majority of them have received no attention.

"Fifteen to twenty-five per cent—3,000,000 to 5,000,000 of them—are suffering from malnutrition, and poverty is not the most important cause of this serious barrier to healthy development.

"From fifteen to twenty-five per cent—3,000,000 to 5,000,000—have adenoids, diseased tonsils, or other glandular defects.

"From ten to twenty per cent—2,000,000 to 4,000,000—have weak foot arches, weak spines, or other joint defects.

"From fifty to seventy-five per cent—11,000,000 to 16,000,000 of our school children—have defective teeth, and all defective teeth are more or less injurious to health. Some of these defective teeth are deadly menaces to their owners.

"Seventy-five per cent—16,000,000 of the school children of the United States—have physical defects which are potentially or actually detrimental to health. Most of these defects are remediable."

More than fifty years have elapsed since the far-seeing Benjamin Disraeli gave utterance to these significant words: "Public Health is the foundation on which repose the happiness of a people and the power of a country. The care of the public health is the first duty of a statesman." The verity of this statement is now being appreciated generally, by leaders in all civilized countries. The survival, surety, premanence and leadership of our country not only depend upon the intelligence of its citizenry, but also

* Thomas D. Wood: "War's Emphasis on Health Education," New York Times, April 14, 1918.

upon its health and vigor. A country saturated with disease and physical imperfection cannot remain in the vanguard of civilization.

Particularly are schoolmen interested in health for they realize acutely that it is in the public schools of our land that the foundations of our nation's health and vigor must be laid. The training of minds and the maintenance of sound, vigorous and harmoniously developed bodies must always be the chief concern of Schoolmen and School Board Members.

It is futile, indeed, to train the minds of the youth of the land and at the same time permit them to deteriorate physically and to die of disease. We must look at the human body as a machine. One of our supreme concerns as Schoolmen is to see to it that each human body machine in our public schools is not only given an opportunity but is constrained to attain and to maintain an energy generating motor of the first magnitude. We cannot afford to educate boys and girls whose body machines will break down early after they enter the traffic of life. Far too many human machines go on the scrap heap too early in life because heretofore we have paid too little attention to the physical welfare of our school children. Society is already burdened with human wreckage. Again, Schoolmen must ever bear in mind that in the strenuous race of life, there comes a crisis in the life of each individual when a sound, vigorous body is the last great issue, and if health is gone, the ideal goal cannot be reached. Schoolmen and School Board Members who fail to provide adequate school health services are cheating the nation.

Let us conceive of health education, including physical education and the personnel and facilities essential to the operation of an efficient school health service, as a human service garage of the school wherein the human machine is tested, oiled and overhauled, and wherein instruction regarding the structure, function and care of the human motor is carried on; all with a view of building up and keeping long lasting highly efficient energy-generating motors.

Time will not permit us to discuss here the organization, administration and necessary expenditures for an effective school health service. That one should be maintained is axiomatic. To summarize, then, money should be spent for health education so that our school children will be assured sound, vigorous and harmoniously developed bodies—positive dynamic health and physical efficiency. Thereby they will be able to serve society, the state and the nation in which they will live with far greater happiness, contentment and efficiency to all concerned.

THE INFLUENCE OF CERTAIN NON-INTELLECTUAL FACTORS UPON THE SCHOLARSHIP OF COLLEGE FRESHMEN

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Modern educational theory and practice are still strongly influenced by a supposed Herbartian doctrine of interest. Almost any teacher of our public schools will tell you that her great problem is to get and hold the interest of the children in her charge. With this interest once secured, it is supposed that all troubles have ceased and that learning is guaranteed. In fact, with most teachers, learning as an accomplished fact is synonymous with interest and interest is defined as a pleasant feeling of liking the activity in which one is engaged. If interest, so defined, were half so potent a factor in learning as teachers believe, it would be folly to spend much time in an analysis of the learning process, or in the study of the facts of economical memorizing, or in attempts at measuring intelligence. The interest to which most teachers refer, strictly construed, must be considered as one of the numerous feelings of pleasantness which accompany various life experiences, and can claim no greater efficacy than feelings of pleasantness or unpleasantness in general.

Of recent years, the educational theory and practice unfortunately termed the Project-Method,—for it is a philosophy of education and not merely a method of the recitation,—has given rise to the idea that the feeling attitude in learning is very significant both because of its importance in facilitating the learning operations and also because of its intrinsic value. The originators of the philosophy back of the project idea had, I feel certain, a sound psychology in mind, but their teachings have been and are being interpreted only too frequently in terms of the popular folk-psychology which finds tremendous efficacy in that poorly defined something, called interest.

Again, in our efforts at measuring intelligence we are constantly confronted with the claim that intelligence tests do not take into consideration all of the factors essential to class room success and that their chief defect lies in the fact that these tests do not take into consideration the interests of students. The first part of the claim stands without argument, but the second part is debatable. Are our intelligence tests defective in that they

do not take into consideration the interest-feeling factors or are they defective primarily in that they lack refinement and precision in measuring the intellectual traits? Upon the answer to this question depends to a considerable extent the direction which our mental test development will take.

I had recently that disturbing experience which all of you have had, the experience of having a student in class who acted bored, who was only intermittently attentive, who admitted that she disliked the subject and was not interested and to whom I could not do otherwise than give a handsome grade because of good scores on all subject-matter tests. In such cases, the advocate of the feeling-interest theory will tell you that you can not take the student's own word as an accurate index of his feelings. We are told that he does not know himself just how he feels and that there is no way of measuring feelings, that these are so fickle and changeable that they can not even be approximately measured, that nevertheless they are there and do the work. It occurs to me that this is equivalent to arguing that we have here an unknown but potent factor in learning, which we don't understand at all but which for lack of a better name we will call feeling. Then we will discredit other factors in the learning process somewhat, and sometimes considerably, and will credit feelings with unusual efficacy. It occurs to me that if we are dealing here with something which even the person experiencing it can not readily recognize nor adequately judge, and which no other party can properly evaluate, then it pays to be conservative in our claims concerning its value. Yet so certain are most educators and even many psychologists of the basic value of proper feelings in learning that but few investigations have been made of this problem. May I take just a moment's time to call attention to these studies?

Going back as far as 1898 and proceeding up to and including 1923 we have only about 12 to 15 studies of an experimental nature that deal with the problem of the effect of feeling upon some phase of the learning process. Six of these studies are written in German by German psychologists, four are by British psychologists, and the rest are by Americans. The conclusions of these studies are highly contradictory and the experiments are generally unreliable because of the small number of cases used, because of the inaccurate treatment of results, and because of the crude devices employed,—generally a poorly worked out questionnaire being the research device. Contrasting for example Kowalewski's results with those obtained by Wohlgemuth, we get the entire range of conflicting results. Both attempted to discover the relation of feelings to retention. Kowalewski claimed to have discovered that we have a distinct memory optimism. He claimed that his experimental results forced the conclusion that pleasant experiences are remembered and recalled more easily and accurately than are unpleasant. (See, *Studien zur Psychologie des Pessimismus*, and, *Schopenhauer und seine Weltanschauung*.) Wohlgemuth, on the other hand, concludes, after experimenting even more carefully than did Kowalewski, that, "There is no

difference between the two feeling-tones in their influence on memory." Take next the study made by Elizabeth T. Sullivan on 'Mood in Relation to Performance.' She attempted again and again with the 'same individuals and with many different individuals to get a measure of mood while also testing the subjects in some easily measurable performances, finding practically a zero correlation between mood and performance in each and every experiment. So we might continue citing studies for the rest of the time allotted but let us rather hasten to our own contribution.

It will be noted that no study of the effect of feeling on learning in the larger sense, that is in the sense in which the term learning is used in the school room, has yet been made. Again, the feeling elements considered in previous studies have been generally of too fleeting and isolated a nature. If we can get a large picture of the more or less permanent and general feeling attitudes of students toward school and school activities, and at the same time an accurate measure of scholarship, we may hope to discover the correlation between the two, if such there be. To accomplish this, we worked out, under the direction of Dr. Terman of Stanford University, several tentative test devices which, because of their very tentative nature I do not care to make public, the general nature of which may be easily described as follow: (I should say here parenthetically that while Dr. Terman was liberal in encouragement and advice, he should in no way be held responsible for the crudeness of the devices, nor for the treatment of results, nor yet for the conclusions drawn.)

While I am interested in the general problem of the relation of feelings to learning, because of the opportunities which are or are not mine, I have selected College Freshmen as my subjects and have narrowed down the problem to the effects of feelings on the scholarship of College Freshmen.

First we worked out a description test in which the student was to rank from lowest to highest according to his likes or dislikes ten different descriptions of students. These descriptions were planned especially so as to emphasize certain attitudes toward the College and its work.

Next, a controlled feeling association test was planned. Here we arranged 10 items or activities connected with the College such as, 'School Regulations,' 'Text-books,' 'Professors' etc., and under each item were listed ten graded feeling reactions. The student was to check the one item which most nearly represented his feelings. It should be understood that in all of these experiments the students went by numbers and not by names and that they were quite aware that whatever they reported could in no way affect their class standings.

A contentment test was next devised, following the same general plan as the second test mentioned, except that the ten reactions listed under each item are graded expressions of contentment.

Results were obtained from these attempts which are highly illuminating but owing to lack of time and help I have been unable, to date, to make

the necessary extensive calculations and to check on the same. I had hoped to be able to present all of this material at this time.

The last test planned, and the one which I wish to discuss with you, is one which might be termed a positive feeling association test, modeled after the Pressey X-O Test for Investigating the Emotions. S. L. Pressey discussed this first test, I believe, in the *Journal of Abnormal Psychology*. (See Vol. 16, 1921-22.) I am certain that Pressey got his inspiration from the Rosanoff-Kent, *A Study of Association in Insanity*. (See, *American Journal of Insanity*, Vol. 67, No. 1 and 2). The Rosanoff association list is so well known and has been so serviceable in clinical work that further discussion of it is unnecessary.

You may recall that the Pressey X-O Tests, Forms A and B, contain four tests each. In each case, the first test is made up of 25 lists of 5 words each, and the person tested is directed to cross out every word the meaning of which is unpleasant. After this performance, a note at the end of the test directs the subject to go over the list again, this time drawing a line around the word in each list which is distinctly the most unpleasant. The words used by Pressey are, for example,

No. 1. Disgust, Fear, Sex, Suspicion, Aunt.

No. 12. Execute, Stockings, Loss, Kind, Filthy.

No. 25. Boat, Yellow, Crazy, Indecent, Shame.

The test which I planned, while based upon this general scheme and while employing the psychology of association, differs in many ways from the Pressey Test. In the first place, I was interested in getting a survey of the positive feelings, that is the attachment of the feelings of pleasantness rather than the feelings of unpleasantness. Therefore, the students were directed to underline in each of the 25 lists of 5 words each the one word with which they associated the most pleasant feelings. Only after they had completed this task, were they directed to go over the lists again, this time drawing a circle around the word in each list with which they associated the most unpleasant feelings.

A second difference consists in the type of stimulus words used. Pressey, as you may have noted from the samples above, used words which were calculated to call up associations with situations of disgust, fear, sex, suspicion, a joker appearing in each list. I was interested in making a survey of the feelings of students as related to school situations. For that reason I selected as stimulus words such as relate to normal, ordinary, school processes.

A third difference is this, that the words which I selected are graded on a basis of five. The standard for grading should receive our attention for a few minutes.

If feelings are at all related to scholarship, it should be indicative of high intellectuality and scholarliness to get pleasure out of mental activity itself; to find joy in learning and learning operations. The stimulus words

to which the highest value (5) was attached, were words which suggested learning activities, as for example, studying, experimenting, memorizing, questioning, suspending judgment, etc.

The interest showing the next highest value should be an interest in subject-matter. Here we call not merely for the highly refined interest in mental operations, but for a more common interest in classified materials and activities as organized in the various subjects of the course of study. Now, a list of twenty-five subjects covers a large field of human knowledge and peculiar dislikes of some particular subject should not affect the general score materially. The value four was assigned to such words as Mathematics, Literature, Chemistry, Philosophy, Modern Languages, etc.

The interests next in value are connected with more or less intellectual school activities, having, however, a considerable social element and value, such as debating, acting, editing school publications etc. The value three was assigned to these words.

The stimulus words of next to the lowest value so far as learning is concerned are such as suggest activities of a purely social nature, as for example, parties, dances, mass meetings, basket-ball etc. The value two was assigned to this type.

The lowest type of feeling attitude was considered to be that in which the student was pleased with the mere physical things of the College, such as fraternity pins, cap and gown, various buildings, campus etc. The value one was given to each of these. Each list contains one of each of these five classes of stimulus words. For example, list No. 1 reads, Campus, Parties, Debating, Mathematics, Studying.

Should a student underline *studying* in this list as calling up the most pleasant feeling, he would be rated 5 under pleasantness. Should he encircle (debating) in this list he would be rated 3 under unpleasant feelings. The sum of the two (8) would give the total feeling score and the difference (5) would indicate the margin of pleasantness above unpleasantness.

Just one word about the scholarship ratings. In the College in which I am teaching, grades are reported in letters from A to F inclusive. It is therefore, impossible to get an accurate summation of scholarship from the various subjects reported. For that reason I took only my own scholarship ratings, based upon work done in Freshman psychology. Three tests were given, totaling a possibility of 200 points. These tests were carefully planned, having been tried out on classes during the previous year.

With so much by way of explanation we are now ready to look at some of the results. These are based upon the scores from 83 Freshmen women, ranging from 16 to 26 years of age, averaging 19 with an A.D. of 1.42. These students are all working on the same curriculum and are all preparing to teach in the early elementary grades. Their large and general purposes are all very much alike. The average intelligence score

of the group, on the Army Alpha Form 6, is 125.53 with a range from 78 to 172. (By average through-out is meant the arithmetic mean.) Using the I.Q.'s as calculated from the Otis Self-Administering, Advanced Examination, Form A, I found an average I.Q. of 109.626 with a range of 90 to 125. In the psychology tests we get an average of 122.891 with a range from 71 to 168.

In the test for positive feelings,—feelings of pleasantness,—out of a possible 125 points, the group averaged a score of 64.698. The negative feeling score averaged 52.012, a difference of some 12 points. The average pleasantness score per list is 2.547, that is, slightly above 2 1-2, or a little more than halfway between 2 and 3. You will recall that 2 represents interest in purely social activities and three intellectual activities with a large social element involved. We do not find a very high average, intellectual interest. In other words, the average interest seems to be divided between dances, parties, tennis, basketball on the one hand and editing school publications, debating, class exercises etc., on the other hand.

Now when you have a group whose average interest has little or nothing to do with subject-matter and class room work, you can not expect that interest to have much of an influence upon scholarship. The latter would, therefore, stand as a result of work uninfluenced by likes and dislikes and the correlation between scholarship and feelings should therefore approximate zero. This is what we find. Using

$$r = 2 \sin [(\pi/6)P]$$

$$P = 1 - [6\sum D^2 / n(n^2 - 1)]$$

we get a coefficient of correlation of —.003, which is equivalent to 0.

There are 11 students scoring 150 or more in the psychology tests. It is interesting to note that the correlation of positive feeling and scholarship in these 11 cases is .25 which is probably as high a correlation as anyone could reasonably expect between the two things correlated; I suppose that no one here would argue that intelligence is not the most essential factor in learning. In this group the correlation with negative feelings is —.1569. The correlation of the Otis I. Q. plus the positive feeling score with scholarship is .3232, while the I.Q. alone correlated with scholarship yields a coefficient of .4669, which is considerably higher than when the intelligence and feeling scores are combined.

In the 14 students ranking lowest in psychology, the correlation between positive feelings and scholarship is —.0368 which of course means a zero correlation, and the correlation of scholarship and negative feelings is .016, which again is the equivalent of zero. The correlation of I.Q. with scholarship in this case happens to be .4669 the exact correlation obtained in the case of the 11 best students.

If we dare draw any conclusions, we would have to admit that in the case of the great majority of students, their general feeling attitudes are but little related to their scholarship. These Freshmen tolerate their sub-

jects more or less goodnatureedly, they go through mechanical performances, they do a certain amount of observing and finally establish a mediocre or inferior record. Their feelings seem to be much more attached to, and their interests are much more centered in the social and semi-social activities of the school and the class room work is accepted without strong feeling reactions, merely as a necessary and unavoidable red-tape process of the institution. In the case of the students whose I.Qs averaged 116.35 as against 103 of the lowest group and whose scholarship averaged 157 as against 89.5 of the inferior group, there is a positive correlation between feeling and scholarship, probably as high as one has a right to expect. It probably means that this goes along with superior intelligence generally, that having more intelligence, their likes and dislikes attach themselves more readily to intellectual activities.

Pressey claimed that the chief advantage obtained from his tests came not from the total scores, but from the diagnostic value of the feeling associations reported. This might be the case in our study were it not for the fact that the papers are unsigned. In some instances, the papers paralleling some exceptional psychology score, an identification was easily possible, as for example in the cases of the students scoring highest and lowest in psychology.

Student No. 38, scored:

168 in psychology,
86 in positive feeling,
65 in negative feeling,
151 in total feeling reaction.

She shows strong preferences as to particular subjects and wherever possible selects the subjects she likes. Psychology is one of her preferences.

Student No. 27, scored:

71 in psychology,
81 in positive feeling,
52 in negative feeling,
133 in total feeling reaction.

There is not so much difference in the feeling scores as one might expect. Looking at the paper of Student No. 27 one discovers that she expresses most of her dislikes in terms of 4 that is subjects. She does not mark psychology as a subject which she dislikes nor does she mark it as one which she likes. It is possible that this indifference had an effect on her psychology score but we are inclined to believe that the difference is primarily one of intelligence. Student No. 38 has an I.Q. of 122 while student No. 27 has an I.Q. of 91, a difference of 31 points. It does seem as if that were enough to explain the difference in scholarship.

Time does not permit bringing to your attention further individual cases. Let us therefore proceed to some conclusions, realizing that these

are only tentative and in the nature of guesses on the basis of imperfect facts.

1. Learning is primarily a process of doing and observing and not a process of feeling and intending.

2. Feelings are not so potent as motives as we had supposed. We are probably driven to doing and observing much more forcibly by purposes well conceived than by feelings. In fact, purposes clearly grasped often make it possible to act even against our likes or dislikes. Purposes are predominantly intellectual, not feeling experiences.

3. Extraneous and artificial purposes such as getting high marks or making an impression on school authorities so as to enable one to get a good position, are sometimes very forceful in urging Freshmen on to work, although one has his doubts about the permanency of knowledge thus gained and one must entertain the suspicion that further pursuance of the study after the final examination is highly improbable. Sometimes it happens that, starting with one of these artificial purposes, the student soon develops real, genuine purposes based upon his greater insight and knowledge gained.

4. It is the object of the project method to create situations that will encourage the initiation of natural, worthy purposes, which in turn become the driving and directing force in learning. This is not the equivalent of saying that you must arouse a feeling of interest, or follow the interests of the learner. It does not substitute entertaining for teaching.

5. Studying the papers one is almost tempted to conclude that feelings of like and dislike, interest or boredom are not so much anticipatory and motivating as they are accompaniments or concomitants of successful or unsuccessful experience respectively.

6. This leads one to conclude that in learning the first thing to do is to get proper doing, proper reacting. If this can be done through worthy purposes, then all the better. Once the proper reactions are being made, once progress becomes noticable, the student will experience little difficulty with disturbing dislikes.

7. All of which leads to the inevitable conclusion that the chief essential in successful learning is the formation of proper learning habits, which includes such factors as persistence, diligence, etc., which in a large measure are habitual. That these habits must be formed anew to a certain degree with every new subject and school situation and that in the formation of these habits worthy purposes play a leading part supplemented, however, in many instances by reasonable compulsions. Such compulsions must persist until the student can get a picture of his progress or can get sufficient insight into the thing studied to form natural attachments. Once the proper learning habits are formed in any connection, the matter of feeling sinks into the background as is the case in all well established habitual reactions.

It may be objected that this leads to mere mechanical learning. That may be true with those who are of mediocre or inferior intelligence, but it is probable that with such practically all learning is mechanical.

May I allow myself one more guess. I am inclined to believe that most teachers are demanding manifestations of interest not so much because of the genuineness of their belief in its value in learning as for the pleasant reaction which it crates in them. We are social creatures and normally will change the conversation when people clearly signify that they don't care to continue the conversation along the present line. But in the class room we must continue, and when Freshmen do with their faces all the brutal things of which they are capable expressive of ennui, then we are harrassed and even chagrinned and are easily led to exclaim, "How can people expect to learn who have so little interest?"

NEEDED,—ONE YEAR OF GEOGRAPHY IN THE HIGH SCHOOL

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1. *Introduction*—Last summer, just at the close of summer school, I received a letter from a member of a committee of three appointed by the superintendent of public instruction to prepare a state manual and course of study for high schools in Michigan, asking me if I would undertake to outline a course for geography covering two semesters of work and have it ready for publication early in September.

Now I happen to be a believer in democracy and cooperation in such undertakings for in such matters two heads are better than one, and three than two as then one gets differences of opinion, and opposition, and must defend his views by discussion. "Democracy is a meaningless word unless it signifies that differences of opinion have been expressed, represented and even satisfied in the decision. Unless our ideas are questioned they become a part of the furniture of eternity. It is only by incessant criticism, by constant rubbing in of differences, that any of our ideas remain human and decent. The easy way is when we are not opposed. That enables us to be dogmatic and to regard whatever we happen to believe as of sovereign value." Here was an opportunity to say dogmatically what should or should not go into a high school course in geography. Should I accept the opportunity and do what I could in the short time before me to shape up some sort of a course of study for geography or should I follow my democratic inclinations and suggest that a committee of interested geographers was the only way in which to make such a course. If I did the latter there was a big possibility that the manual would appear without any mention of geography in it. Since any course was better than no course I put aside my democratic scruples against such dogmatic action and very hurriedly wrote out the course as outlined in the manual except that the manual does not contain the short bibliography of books and materials which accompanied the course as written. It was to silence the occasional reproaches of my conscience against such high handed pedagogical autocracy that I have accepted a place on this program which would enable me to bring before you for belated discussion and criticism the course as published in the manual.

2. *Is there a need for high school geography?*—The first question to be raised and answered is whether there is a real need for any geography in the high school. Geography as a school subject now generally ends in the sixth or seventh grade. In a few high schools the influence of a well prepared teacher, or of some superintendent with a leaning towards geography or what is more commonly the case just mere educational inertia and the want of a cheaper substitute have served to keep in the curriculum sometimes a half year of physiography or commercial geography,—occasionally of both—and rarely a full year of the more modern successor of these two,—general geography. Such schools are the exception, however, and the great majority of high school graduates have had no geography since they left the sixth or seventh grade. Frankly is geography enough and if not why not?

First of all the average patron of the schools and perhaps the average superintendent also, still thinks of education as a preparation for life. As such, education to them consists in acquiring some skill in storing up various sorts of knowledge for future use. Has geography anything to offer that from this point of view will justify including it in the high school curriculum? While my own attitude towards this preparation-for-life theory of education is about the same as my attitude towards that once very common theory of life in this world which regarded it as but a preparation for a life in a world to come, yet I do believe that even from this point of view of cold storing knowledge for future use, geography *does have a body of facts and information just as likely to be useful in after life for the student as has many of the so called practical subjects which use far more time in the curriculum than geography asks.* Moreover, any sort of intelligent use of geographic principles and relationships in practical living and thinking requires a more complete knowledge of geography than pupils in the sixth and seventh grade are capable of acquiring. The very complexity of the principles and relationship involved demands that the course in high school geography be postponed until the students taking it have acquired sufficient maturity to do the thinking and reasoning necessary to grasp the significance of these relationships, so that understanding and not mere memory alone shall aid in holding them in mind for future use. I was delighted to learn thru further correspondence that the manual committee had in mind the tenth grade following general science in the ninth as the most desirable place in the curriculum for the year of geography which they were willing to recommend.

Concerning this so-called practical or informational side of geography, I feel that geography will fail in the future as it has failed in the past if we expect that its value is to be measured by the number of memorized facts which students can retain and reproduce after some lapse of time. Judged by the same standards and tests and in spite of more time in the curriculum and better prepared teachers, history is a failure, mathematics is a failure and English is a failure in the schools. Yet we know they are not failures even tho students forget most of the facts which they learn in those subjects.

Superintendents and the public must be educated out of their present wide spread belief that the test of the value of geography in the schools is the number of places whose location its students know or the number of facts which they retain permanently in mind from the course.

Closely allied to the informational value of geography are certain indirect results or objectives which geography can help to attain that are more important in the world to-day than are any mere facts which it is supposed to give.

(1) A full year of geography in the tenth grade ought to make possible such a study of people in their environmental settings as will tend to develop a sympathetic understanding of such peoples, their attitudes and characteristics by making it clear that their differences and peculiarities arise in large degree out of differences in their natural surroundings and are not the perversities and general cussedness of human nature.

(2) There is also some hope of making students with the maturity of tenth graders understand how improvement in transportation and communication both of ideas and material things has brought about such place specialization of industries with its consequent shrinkage of the home spaces of industrial workers within their sustenance spaces as to cause an economic interdependence of people, nations and regions that brings within the material environment of all civilized peoples, practically the resources of the whole earth. This idea of earth unity growing out of the realization of such economic interdependence is the best antidote for wars such as the recent World War which grew out of economic rivalries and the artificial stimulation of nationalistic differences and misunderstandings by ambitious political leaders.

More important than the mere information and knowledge which geography has to offer is the influence which it is capable of exerting in accomplishing these newer and better ends of education that are to be attained only by the growth and development of the individual into the full stature of his hereditary possibilities. It is impossible for one generation to anticipate the many problems which the next generation will be called upon to solve nor the information that will be needed for solving them. Our best hope lies in bringing each new generation up to the highest level of intelligence and rational thinking that it is capable of reaching thru the use of such material as is most capable of stimulating intellectual growth.

It is in this respect that geography can make its strongest claim to a place in the modern high school curriculum. Its subject matter deals with two sets of factors or conditions; (1) the facts and conditions of man's natural environment, its climate, its topography, its soils and mineral resources and its natural vegetation, and (2) the life responses which man makes to this natural environment. To me this *idea of life response to environment is the very heart and soul of modern geography* and if for the moment we take preparation for life as the sole aim of education and life itself as but one continuous series of responses of adjustments of individuals

and groups to their natural and social surroundings, what better preparation for life can be conceived of than to ask young people to consider the various sorts of responses and adjustments that people in various and diverse types of environment have found it necessary and desirable to make. If history is a worth while subject of instruction because it shows citizens of the future how political groups have acted in various and diverse political situations of the past so that these citizens of to-morrow will have some other lamp to guide their uncertain footsteps when they come to tread the devious paths of citizenship, than their own limited experiences, if it is a part of the business of literature and fiction thru second hand experiences to furnish right standards of conduct under all sorts of social and moral situations, then why isn't it just as logical that some time be spent by students in finding out how people in all parts of the world are seeking solutions for problems which find their origin largely if not wholly in the conditions of natural environment under which those people are struggling for an existence? History is not doing this. It is too busy with the past. Sociology attempts only certain aspects of such problems as does economics, other aspects. Geography is the only science that is capable of making such studies of people in their regional settings. Who but a geographer could have written a book of the day and hour such as Bowman's "The New World" and his "Problems of the United States"? And the strangest part of the whole matter is that when geographers themselves have been quarreling as to the limits and bounds of their science, regional geography or the study of people in their natural surroundings has always remained the undisputed tho uncultivated field of the geographer. Isn't it about time that geography settle down to the persistent cultivation and teaching of its own widely recognized and undisputed field?

But all of this has more to do with those remote objectives of fitting the student for his adult life as a citizen and with the sort of knowledge which he stores away for future use than with the effects of that knowledge upon the student to-day. Every subject admitted to the high school curriculum should be required to prove its educational value by showing what it can do towards meeting the present needs of the student by stimulating his growth and development here and now.

Biology has furnished to the world during the last century the largest amount of thot-provoking material of almost any subject in the whole field of science. It has been able to do this by directing the attention of its workers and its students to the details of the evolutionary process by which plants and animals have made structural organic adaptation to the slowly changing conditions of their natural environment. Geography and regional geography especially has an almost equally promising field for investigation by inviting its workers and its students to a consideration of the equally important evolutionary process by which man since he arrived at the human stage has responded to the variables and constants in his natural surroundings. At present it seems quite certain that man does not respond to such

conditions by adaptive modifications of his bodily form as do the animals but by making mental adaptations to them, largely individual in the savage stage but increasingly communal and cooperative as he advances in civilization. "It is therefore the aptitudes which the members of a community display, the tools which they use, the kinds of knowledge which they accumulate, their modes of organization, their types of material wealth, their traditions, and ideals which show the imprint of their environment far more truly than does the color of their skins or the shape of their heads." As geography has thus evolved in response to our changing conception of the nature of human response to environment it has changed from a place of insignificance among the physical sciences to one of growing importance among the social sciences. As evidence of this shift of position among the sciences witness how in one university after another geography has separated from the geology departments and become independent departments, with young men in charge of them who have received as thoro and as scholarly training as those in any other field of science. "The materials for bringing the generalizing science of geography to the dignity of completeness are not yet all collected but the plan is already grandly outlined. Incompleteness of data, however, is an incentive to progress and a guarantee of substantial advance being made when the right direction is foreshadowed by a theory. The theory of geography which gives life and unity to its varied details is the far-reaching theory of evolution" now applied to the intellectual development of man as biology applied the theory to the organic development of plants and animals. Geography deals therefore with the thot processes by which individuals and communities respond to the conditions of their natural surroundings. Its educational value is not to be measured so much by the information which it gives as by its power to stimulate rational thinking and hence mental growth on the part of its students. Its one basal dominant idea is the idea of cause and effect. More than almost any other subject does it offer the student the opportunity of developing his reasoning powers thru the use of raw materials of thot such as life will use in presenting to him for solution some of its most difficult problems.

3. *How can the desired objectives of geography be attained?*—If it be true that the subject matter of geography when rightly used is capable of developing in students thinking and reasoning power similar to that which life is going to require of them and if the development of such power is the chief objective of high school geography, it seems self evident that there can be no possible reason for including geography in the high school curriculum unless it can be introduced under conditions which do not predestine it to failure before the course opens. Under what sort of conditions is there any hope of success for high school geography?

First of all, there must be an instructor in charge of the work who has a naturally scientific rational brain which has had sufficient training in geography to enable him to recognize it when he sees it out of doors, or reads it

in books and magazines, and then to use such material in the solution of geographic problems and in stimulating their solution on the part of his students. Geography has been a failure in the schools more frequently because of the lack of such a teacher than from all other causes combined. About the only qualifications required to teach high school geography in the past has been a vacant hour when geography was scheduled on the program. As a consequence geography has been taught by every teacher on the high school faculty ranging from stenography to Latin and Greek.

Well prepared teachers of geography have been almost impossible to find in past because there have not been enough positions demanding such preparation to justify any teacher in making the investment of time and money necessary to secure the required training. There have been few demands for such teachers because there has not been enough geography offered in the high school curriculum to require the full time of a special teacher. The only way to break this endless round of cause and consequence seems to be to introduce enough geography into the curriculum to require the service of a full time teacher. With a full year of geography in the tenth grade and with a full year of geography in the first year of the junior high school there should be enough geography in the high school to justify the employment of a teacher who has other qualification for teaching geography than a vacant hour in her schedule of classes. It is always possible to find a few students each year among the graduates from our normal schools, and for the larger high schools a few among university graduates, who tho not specializing in geography yet have had enough geography to justify them in attempting to teach it in the high school with perhaps a class in general science or some closely allied social science such as economics or history as a filler. I have heard it said so often by superintendents that they never knew a teacher to make a failure in teaching any subject because of lack of preparation in that subject but always because some defect or weakness in personality and I suppose it is so well established an axiom among them that anyone can teach anything if they only have the right personality that there is no use in suggesting that perhaps there would not be so many failures of personality to stand the strain, if superintendents were a little more careful in selecting teachers who had better preparation in the subjects they were required to teach.

When a teacher of geography has been found with some sort of adequate preparation for teaching that subject, their efforts should not be nullified completely by a total lack of equipment other than the text book to be used. Geography requires laboratory facilities and an equipment of maps, atlases, and references just as truly as does chemistry or manual arts. I greatly regret that lack of space or some other reason did not permit the publication of the short bibliography of materials and references which was prepared to accompany the course outlined in the manual. It would have been especially

suggestive to teachers without thoro training who might be asked to teach the course and to superintendents who desire equipment for such a course.

4. *Content of the course*—When we come to the content of a course in high school geography we reach a topic upon which the doctors will not agree and while they quarrel the patient may die. There is so little agreement among geographers as to what ought or ought not to be included, first, because there is so much that might be included that a half dozen courses all equally good might be outlined, and second, because geography occupies the unique position of being a science in process of rapid evolution and development. Geographers often differ as to the nature of its content according to the particular stage of its development which they happen to represent.

Physiography in the schools is a survival of an early stage in the development of geography when the startling discovery that physical environment is a variable awakened an interest in the origin and development of land forms akin to that awakened in the biological field by the similar discovery that plant and animal species are not special creations but have evolved from earlier and lower forms of life. Commercial geography is a reflection in the schools of an awakened interest in foreign trade created by the gradual transition of the United States from the economic positions of being an exporter of raw materials and food products and an importer of manufactured goods to that of a manufacturing nation with a growing surplus of manufactured goods for which it needs a market and an equally rapidly growing need for cheap raw materials and food products that would enable it to compete in the markets of the world with its manufactured goods. Commercial geography consisting of much statistical information about exports and imports, seemed to be a short cut to the needed knowledge of such markets and commercial products. For a time it spread rapidly in the schools but such a course can never be anything but the most superficial consideration of facts and statistics with the maximum of educational value in it until students can be made to realize that commerce or trade is but the culminating event in a long series of individual and community responses of people to the varied conditions of varied environments resulting finally in varied and complementary surpluses and exchange of which efficient transportation permits and stimulates.

Such knowledge of environmental differences became increasingly possible as investigators kept delving deeper into the varied conditions of climate, surface, soil and mineral resources of the earth. As a result of such growing knowledge of regional differences it became even clearer that groups of people are what they are in respect to their occupations and industries, their manners and customs, their interests, political, social and economic, and their commercial surpluses largely because of the conditions of geographic environment under which each group works and lives.

The realization of such facts could not help carrying geography forward to the last and I believe final stage in its development; viz. regional geography.

I care not whether the region studied be a political unit as it necessarily will be in many cases, or a physiographic one as it often may well be, or the more recently conceived geographic region in which a complex of environmental factors determine the dominating interests of the human group residing within it. The important consideration, if geography is to accomplish the objectives outlined for it earlier in this paper, is that its study shall culminate in the study of people in their environmental or regional settings.

When such studies are made of human groups it is almost invariably found that for each group there is some dominant economic, social, or political interest or problem in the present day life of the group, the solution of which is of utmost importance to the welfare of the group. Such current present-day interests and problems often have little or no meaning when considered apart from the environmental settings out of which they grew. For that reason such problems furnish not only unique and ideal introductions to the study of regions but they offer comprehensive topics for investigation the further study of which will lead to a working knowledge of the geographic essentials of the region within which each problem arises. Time, however, will not permit even the mention of such problems and they can only furnish a desirable future goal for an ideal method of presentation when the better preparation of teachers shall more surely justify their use.

The average teacher will long need the help of such organizations of subject matter as is to be found in a workable text book. Are there texts in existence which will justify the immediate introduction of a course in geography similar to the one outlined in the manual? I believe so and have given them in the bibliography of books and materials prepared to accompany the course outlined in the manual but which could not be published for lack of space. A mimeographed copy of the bibliography will be sent by the geography department of Central Normal upon request. With these books a start can be made relying upon competition and the watchful alertness of American publishers to furnish new and better texts to meet the growing demand for such texts that will be created by a more general introduction of geography into the high school curriculum.

THE CORRELATION OF HEALTH EDUCATION AND BIOLOGY

PROFESSOR JESSIE PHELPS, MICHIGAN STATE NORMAL COLLEGE

Correlation of Health Education and Biology may mean several things, among them: first, the common teaching material of the two, second, how the one may utilize the material of the other, third, the common educational ends of both.

Health Education must be understood to mean more than formal lessons in hygiene; and it is coming to mean, in several of our more advanced schools, a state of mind or a condition. Health examinations are now taken for granted, and defects are not only pointed out but must be done something about in order that the students obtain their diplomas. Prof. Peabody, who is director of the hygiene program and head of the department of biology in the Morris High School, New York City, tells in a report of the hygiene work of that school that a student who does not do something to correct the defects is soon "excluded from classes in *all* subjects, and sent to a study hall, there to remain until he brings a written statement from a clinic or private physician that treatment is actually begun." "In order to secure his diploma the president of one of the graduating classes had a tooth pulled the last week of the term!" In this same school visiting teachers are employed to reach the homes directly. Hygiene in the Morris High School is not a preparation subject, but no student is exempt from its classes, which are held once a week thruout the four years.

Many of you know of the work of Miss White of the Merrill-Palmer School of Detroit, and of the extension of the program to cover all the schools of Wayne County. Accounts of this new and very important work can be found in the February number of the "American Schoolmaster," and also in the report of the "International Health Education Conference" held last summer in San Francisco. (See bibliography at close.)

The Washington State Normal, located at Ellensburg, Washington, is doing a notable piece of health education work under President George Black, in which the living conditions of the students as well as college conditions are carefully looked after.

These examples will serve to make you understand the practical type of Health Education now being advocated.

The very definition of biology makes it include human physiology and positive hygiene. Since the day of negative health teaching is passing, and

we are confronted with a mass of constructive health material, it is but natural that each of the contributing subjects to the health program should be interrogated as to what it has to offer in material and in methods and in point of view.

Along with our new concepts of health work, perhaps preceding it, we have accepted the large idea of the function of education and the school. The school is now that of as a home, a place where the child is protected, caused to develop, and where he shall find himself and his world. The ideal school of tomorrow provides perfect living conditions for exercising, playing, sleeping, eating, making friends, learning morals and manners, and, incidentally, handling, seeing, learning things, getting the world interpreted.

Biology has a major part to play in this interpretation; and health education has as its ends, the end of all education; viz., the making and keeping of the individual at his best, physically, mentally, morally, spiritually; for health refers to body, mind, and soul.

When the ideal school of tomorrow shall have become the actuality of today, we shall discover that the axis round which the whole is unified will be *personal health*. This can be so because of the coincidence of the end of health education with the end of education in general. The formal subjects will then be oriented around this central axis, and *every* teacher will be aware of the health condition of his or her individual students, and will be responsible, as a parent, for their biologic well-being.

Of the subjects which already correlate most closely with hygiene, biology doubtless holds first place. This is for several reasons, almost too obvious to mention to a group of biology teachers. Among these, three topics will serve to illustrate.

1st. Biology, by definition, as said before, must include the subject matter of health education, since man is a biological type, and health is the expression of his adjustment to his environment. Hygiene is, or should be, simply the application of biologic findings. Biology is a science; hygiene is an art, but an art based, as all true art must be, on science. Human physiology is the biology of man; hygiene is the art of biologic life. Hygiene without a foundation in physiology and biology can come to nothing.

The topic of the *interrelation of the environment and the organism* involves of course the use and care of the sense organs for receiving stimuli; motor organs for response; and endocrine secretions and nerve action for coordination and control. It leads very directly to a second topic; viz.,—

2nd. *Metabolism*. Of course this means a study of nutrition and elimination, two cardinal subjects for the hygienist. It necessitates preliminary work in chemistry. Not only a consideration of foods would be included, but poisons also. Here some of us would have opportunity to make effective blows against the use of alcohol and tobacco and other narcotics, as well as against autointoxication.

A study of fatigue, its causes and reliefs, might well be attempted. Muscle action, release of energy, formation of waste products, all are common material for both the biology and the hygiene teachers. They are topics of vital importance to the student in the understanding of all life processes, and should certainly not be omitted in the course of his training.

In this connection emphasis should be put on the great truth that we human animals are set up for action. Laziness is an abnormal state of mind, a mental malady, which inhibits the motor apparatus for fulfilling its purpose. Biology has ample opportunity to illustrate this, and thus incidentally prove the worth-whileness of the physical training classes.

3rd. A third topic which finds common ground in both biology and hygiene is that of *reproduction*. Biology paves the way for all sound instruction in sex-social hygiene, just as it is basic to general hygiene, physical training, home economics, physiology, and psychology. This may be accomplished partly by straight biology classes, partly by general science and nature study. The very universality of the reproductive process not only takes away all sense of shame in the consideration of the matter, but lends dignity and purpose to it. It helps also to make us understand where man belongs in the universe, a thing apparently needed in these days when statesmen tend to be anti-evolutionists.

In connection with sex-social hygiene the fact of the human type of consciousness bobs up to vex us. We must remember that the awareness of moral issues makes man the peculiar animal that he is. Consciousness is the biggest biologic factor in determining the life of men, hence its study surely will not be omitted in the process we call education. The study of the development of consciousness belongs in biology and psychology and history. To sense its place in health education one has only to study the emotional causes of speech defects among children. Nearly the whole field of mental hygiene is concerned with early effects of emotional reactions. To help a student to harmonize modern social standards with his primitive instincts—those the race acquired before the dawn of moral consciousness—is indeed a task that demands a belief in evolution. Such adjustment between the primitive and the modern is the crying need of sex-social hygiene.

It is evident that biology, either for itself or thru the hygiene classes, must enter the psychology field,—the new psychology field. The work of Cannon and Grile offer good bridges connecting the two fields, and Ellis and Pfister are safe guides, even tho they do lead toward Freudianism. When every teacher and every artist and all the playwrights have the biologist's view of sex, and also understand its ramifications into man's social structure, we shall be far along the road to the millenium. Biology, you see, has a wonderful service to render. It is capable of rendering this service because it can and must, as a science, take an impersonal and unbiassed view of the world of fact.

No law is ever firmly established until it is believed in by the majority of the people. To establish belief it is necessary to demonstrate its efficacy, and to reveal its basis in the nature of things,—the everlasting facts of science. Hygienic rules may do for children—if they see that their teachers and parents are themselves devoted to and obedient to these same rules. “But there’s the rub!” Grown-ups don’t really like hygiene. They usually employ only enuf of it to get along with—tolerably. They slip one over on it—whenever they can. The fact of the matter is, we only half believe in it; and that is largely because we do not sense that there is a scientific foundation for it.

To summarize:—Health education is fast becoming the center of our educational system. Biology, the science of life, has close correlation with hygiene because it furnishes most of the material for a study of man—one of the biologic types of animals,—and because health is an expression of the reaction between man and his environment. Biology furnishes all the principles of living, and it furnishes also the proper healthful attitude of mind toward all hygienic processes. Three general topics illustrate the possible common interests or material of the two subjects:— (1) *Adjustment* of the organism to the environment; (2) *Metabolism*; (3) *Reproduction*.

Health education and biology should play into the hands of each other. The hygiene teacher needs a background of biology, and the biology teacher needs to appreciate the application of scientific knowledge to everyday life. They should get together for the sake of the students. The ends of the two are not identical, one being a science and the other an art; biology is basic to correct hygiene teaching, and hygiene is necessary to fine living.

It is time a new culture were conceived, measured not only by man’s appreciation of literature and the fine arts, but by his appreciation of the entire universe, of the personality of his fellow-men, and the respect and honor of his own body. Biology is to lay the foundations; hygiene is to rear the up-rights, of the new education which will give this culture.

BIBLIOGRAPHY

1. *Cannon*. Bodily Changes in Pain, Hunger, Fear, and Rage. Appleton.
2. *Crile*. Origin and Nature of the Emotions. Saunders.
3. *Crile*. Man an Adaptive Mechanism. Saunders.
4. *Pfister*. Psychoanalysis in the Service of Education.
5. *Wiggam*. The New Decalogue of Science. Bobbs-Merrill.
6. *Hill*. Should We Have Facilities of Public Health? *Science*. Feb. 15, '24. LIX, 1500, p. 153.
7. *Peabody*. Outline of Sex Education in the High School. School and Society. Vol. XV, No. 389. June 10, '22.
8. *Report of International Health Education Conference*. American Child Health Association, 370 7th Ave., N. Y. C.
9. *White*. Health and Nutrition Program for Wayne County. *American Schoolmaster*. Vol. XVII, No. 2, p. 61.

In the discussion following, questions were asked relative to the preparation of teachers of physical education. It was suggested that they need a wider biological foundation for their work than they now have.

The question as to the advisability of trying to teach heredity and eugenics to high school students was raised.

The monthly magazine "Hygeia" was highly recommended.

SYNOPSIS OF BUSINESS MEETING

Hill Auditorium, April 4, 1924.

The meeting was called to order by the President, Lila E. Fyan.

The minutes of the 1923 meeting were read by the Secretary, L. P. Jocelyn, and approved.

The financial report of the Secretary-Treasurer was read and accepted as was the report of the Auditing Committee.

The report of the Committee on Resolutions was read and adopted.

The report of the Nominating Committee was read, adopted, and the officers named therein were declared elected.

The report of the Committee on Research Work in the High Schools of Michigan was read and the Committee continued.

A resolution by Professor C. O. Davis for the appointment of a committee to meet with a like committee from the M. S. T. A. was adapted and the following committee was afterward appointed: A. R. Crittenden, University, Chairman; W. E. Praeger, Kalamazoo College; John A. Craig, Muskegon; Caroline E. Britten, Jackson; Frances J. Brown, Detroit; President F. A. Jeffers, Painsdale; Secretary L. P. Jocelyn, Ann Arbor.

Meeting adjourned.

Louis P. Jocelyn, Secretary.

REPORT OF COMMITTEE ON RESOLUTIONS

1. That the Schoolmasters' Club pledge its support to the passage of the Education Bill now before congress and request the Secretary to communicate with each Michigan member of congress urging them to support the bill.

2. That we heartily commend President Burton and the University administrative officers for their recent efforts to raise the already splendid morale of the University student body.

3. That we pledge our support to Hon. T. E. Johnson and the State department in their program to increase the standard of qualification of the teachers in Michigan. That we render all possible aid as we approach Sept. 1st, 1925, when the law requiring one year's training beyond the high school goes into effect. That we also pledge our assistance in seconding their efforts to secure a more equitable distribution of the primary school money.

4. That we go on record as favoring more liberal appropriations to our state educational institutions.

5. That we thank the University Glee Club for the fine music rendered at the Schoolmasters' Club dinner.

Respectfully submitted,

Webster H. Pearce.

Miss Jessie S. Gregg.

REPORT OF THE NOMINATING COMMITTEE

April 3, 1924.

The nominating committee would present the following nominations for the ensuing year:

President—Supt. Fred A. Jeffers, of Painsdale.

Vice President—Miss Mary Newell Eaton, of Grand Rapids.

Member of the Executive Committee—Prin. Joseph H. Corns, of Detroit.

Secretary-Treasurer—Mr. Louis P. Jocelyn, of Ann Arbor.

Signed.

Frank Cody.

Caroline E. Britten.

Arthur G. Hall.

REPORT OF THE COMMITTEE OF THE SCHOOLMASTER'S CLUB ON INVESTIGATIONS OF RESEARCH WORK IN THE HIGH SCHOOLS OF MICHIGAN

To the Michigan Schoolmaster's Club:

Your committee begs leave to submit the following report:

Last year a committee appointed by the Michigan Schoolmaster's Club made a report relative to research work and investigations conducted in the high schools of the state of Michigan during the year. The avowed purpose of this investigation was to determine whether or not secondary schools were participating as extensively as elementary schools in the scientific study of their problems. The results of this investigation were not conclusive on this point. Quoting from last year's report "C. The committee is impressed by the relatively small number of studies whose results are expressed objectively. In other words, many of the studies lack definiteness. Too much is left to unsupported judgment."

In view of this statement of last year's committee, your present committee believed it could serve best the purpose for which it was appointed by carrying forward the work previously undertaken.

Our objectives were then, to determine the effect of the recommendations of last year's committee upon research and investigation in our high schools, and to determine the exact character of these projects.

Communications, therefore, were sent to those in authority in one hundred sixty-four high schools. Quoting from this communication, "We wish to secure reports on original investigations. Make a clear statement of the problem under consideration, a very definite statement of the procedure or method of investigation, and a very specific report on the method of checking up in a quantitative way the results of this work."

We thought it advisable to secure reports on two other types of investigation. We were interested to learn to what extent standardized tests of various sorts were used in the high schools. Those reporting were asked to indicate the type of test used and the purpose for which it was used.

We also asked for reports on the types of investigation which were carried on last year, namely, investigations that cannot be checked up quantitatively but are matters of general opinion.

Your committee received fifty-eight replies to the one hundred sixty-four letters sent out. Of these fifty-eight replies, only twenty-six cities reported investigations of any sort.

These replies were grouped according to the type of investigation.

Only four cities reported problems which could be classified under group one which includes original research problems, clearly defined, scientifically

carried out, and measured quantitatively. The statements of these problems as they appear in the reports received by your committee are given below:

1. "A study of the effect of homogeneous grouping on classes in plane geometry." C. V. Courter, Principal of Flint High School.

2. "To study the relative value of teaching English in the ninth grade to homogeneous and mixed groups." William F. Head, Principal, Albion High School.

3. To study the relative value of teaching pupils in homogeneous and mixed groups. F. J. Du Frain, Principal, Pontiac High School.

4. "To determine the relation between the work done in high school and the Detroit City College by Detroit high school graduates." B. J. Rivett, Principal, Northwestern High School, Detroit.

5. "To devise and standardize a chemistry test on equation writing, problems, and information." B. J. Rivett, Principal, Northwestern High School, Detroit.

6. "Memory and Marks in Mathematics." Ethel Luccock, Northwestern High School, Detroit.

Problems one, two and three of the above group are being worked out under the direction of Dr. Clifford Woody of the School of Education, University of Michigan. Problem five is being directed by Mr. P. T. Rankin of the Research Department of the Detroit Public Schools.

Fourteen cities reported investigations which come under group two. The problems as stated appear below excepting such as the committee was compelled to restate for sake of clearness.

1. "To show the relation of mental progress to physical fitness." M. B. Ranch, Supt. of Schools, New Baltimore.

2. "To learn the comparative mental capacity of each student." F. R. Phillips, Supt. of Schools, Croswell.

3. "Comparison of pupils in Latin 9 with standards of Henman Latin Tests." F. R. Phillips, Supt. of Schools, Croswell.

4. "To determine the reason for general failure in Freshman English." Ralph van Hoesen, Principal, Alma High School.

5. To group pupils into fast and slow sections by means of intelligence tests and teacher's estimates. R. W. Ward, Principal, Mount Clemens High School.

6. To find the weakness in grammar instruction by means of standard tests. F. D. Davidson, Supt., Marcellus.

7. To determine the "achievement in English composition and Algebra." W. W. Haggard, Principal, Saginaw W. S.

8. "We use the Otis tests for general intelligence. We also use various tests in Algebra and French." J. R. Hervy, Principal, South Haven.

9. "To determine the quality of English instruction given the ten grade schools of the county." Edwin Boyne, Midland.

10. To measure results of instruction in Algebra by means of the Hotz Algebra Scales. Mrs. N. M. Frye, Dept. of Math., Milan High School.

11. To group pupils into X, Y, and Z groups for instructional purposes. Chas. E. Le Furge, Principal, Lansing High School.

12. "To measure progress in Algebra classes on the basis of a monthly unit." M. McFarlane, Principal, Ishpeming.

13. "To discover weaknesses in our instruction, to compare work of our school with others and to measure fully our teaching results." Melvin C. Hart, Principal, Birmingham High School.

14. To group pupils into sections according to ability. Mary Trainor, Menominee High School.

15. "To teach pupils to follow directions in arrangement of heading and numbering papers." Mary Trainor, Menominee High School.

16. To determine reading ability of high school pupils. Mary Trainor, Menominee High School.

17. "To measure progress made during the year." Mary Trainor, Menominee High School.

18. We have been cooperating in state testing program under the direction of the Bureau of Reference and Research of the School of Education, University of Michigan. Pearl Windsor, Principal, Iron River High School.

Fifteen schools reported investigations which were classified in group three. This group consisted of problems that were not to be measured accurately but were to be matters of opinion. These were stated as follows:

1. "To determine the need of Bible study among high school students." E. J. Reed, Principal, Adrian.

2. "To determine the correlation, if any, between tenth grade English and tenth grade mathematics." E. J. Reed, Principal, Adrian.

3. "To determine the number and percentage of students compelled by circumstances to engage in part time employment for pay, also, to determine the nature and extent of home duties and their relation upon scholarship." E. M. Boyne, Principal, Midland.

4. "To determine the effect of a published honor roll upon monthly scholarship." E. M. Boyne, Principal, Midland.

5. To devise a marking system that will take into account individual differences. A. A. Kalder, Supt., Hartford.

6. To determine the attitude of parents toward interscholastic athletics for girls. M. F. Cole, Principal, Ferndale.

7. "An effort to determine the causes for pupils leaving school." M. F. Cole, Principal, Ferndale.

8. "To determine what effect exemption from examinations has upon (a) general scholarship, (b) attendance." D. L. Wilde, Principal, Charlotte.

9. The effect of individual instruction in algebra. E. H. Moore, Supt., Eaton Rapids.

10. "To determine the relation between teachers' marks and pupil rating by mental tests." Ralph van Hoesen, Principal, Alma.

12. "To determine the effect of giving concreteness to assignments by 'points of emphasis' on the scholarship of students." R. W. Ward, Principal, Mount Clemens.

13. To find correlation between results of standard tests and semester marks. C. D. Wheaton, Principal, Yale.

14. "An attempt to improve our marking system." Melvin C. Hart, Principal, Birmingham.

15. "To study the general problem as well as the special problems involved in supervised study." William Head, Principal, Albion.

16. "The study of the general status of the morale of the high school body." Bessie Pinney, Adviser of Girls, Wyandotte High School.

17. "To prove city students are better prepared for the study of Latin than non-residents." J. R. Hervey, Principal, South Haven High School.

18. "To determine the average number of words misspelled and the average number of errors for boys, for girls and for the school as a whole." C. La Furge, Principal, Lansing High School.

19. To discover best method of instruction which will take into account individual differences. To discover a new method of recording results to replace old marking system. Mrs. Myra M. Frye, Milan High School.

There were six problems reported which could not be classified under any of these groups.

Your committee wished to know to what extent those conducting research work in the high schools were trained for such work. The following question was included in the questionnaire: "Has the person who is doing this work had special training for such investigation?" The replies to this question indicate that only 66 2-3% of those conducting investigations which were classified in group one have had training. Fifty-five and five tenths per cent of those doing work classified in group two have had training, and only thirty per cent attempting to solve problems in group three have been trained.

The main concern of your committee is to lay the facts, as shown by these reports, before you.

It appears that there is very little effort spent on investigations of any sort by the high schools of our state. There is still less on problems carried out with scientific accuracy.

Undoubtedly there are many reasons why this is so. Perhaps the main reason is that there are so few people connected with high schools who have been trained for research work of this character. There are two sources of evidence that this is the case. The first is the admission of this fact shown by those reporting to the committee. The second and most important evidence is contained in the reports themselves. We are inclined to think that the percentage of those trained as indicated in this report is entirely too high.

There are many problems in the field of secondary education which are

standing challenges to those prepared to solve them. Your committee believes that every school system which attempts this work should employ a thoroughly trained individual to direct it.

You will note that we have neglected answering the question relating to whether high school teachers are as active in research work in education as are elementary school people. We are not able to answer that question, we have no data upon which to base a reliable opinion. That, however, is not an important question. Our chief concern as high school teachers should be with the question: Are we doing all that can reasonably be expected of us in solving the problems of secondary education?

Finally, your committee wishes to call your attention to the fact that secondary schools are not utilizing the Bureau of Educational Reference and Research of the School of Education of the University of Michigan as they may. This department was created for the express purpose of giving assistance in the field of research to the public schools of our state. The only recommendation which your committee wishes to make is that you secure the advice and assistance of the Bureau of Educational Reference and Research in solving problems of the character of those discussed in this report.

Respectfully submitted,

Mr. George W. Murdock
Mr. Paul Rankin
Dr. Clifford Woody
Mr. L. W. Fast, Chairman.

NECROLOGY

The Mathematics Conference of the Michigan Schoolmasters' Club desires to record its deep appreciation of many years of devoted service given to the Mathematics Section by Professor C. B. Williams, late of Kalamazoo College. His educational career in Kalamazoo College was marked by great skill as a teacher, unusual capacity as an administrator, and lasting influence on the College, both past and future. His untimely death removed an earnest and interested associate in this Conference, where his loss is deeply felt.

We recommend that this expression of appreciation be spread upon the minutes of the Club and that a copy be sent to his children.

J. L. Markley,
L. D. Wines,
L. C. Karpinski,
Committee.

RESOLUTION BY PROFESSOR C. O. DAVIS

To the end that the work of the Schoolmasters' Club may be more expressive of the wishes of all high school teachers and college people in the state, and may be articulated more closely with other educational organizations therein, Be It Resolved that the Club looks with favor to the creation of a joint committee composed of fourteen members—seven, including the President and Secretary of the Schoolmasters' Club, and seven, including the President and Secretary of the Michigan State Teachers' Association,—which committee shall be charged with the duty of studying the entire question of federated policies and shall bring back a report to this Club one year hence, that is the annual meeting in 1925.

Be It Furth Resolved, That the present President of the Club be authorized to appoint the members of the committee who shall represent the Schoolmasters' Club and that the Executive Committee of the Michigan State Teachers' Association be requested to provide for the appointment of the members representing the Michigan State Teachers' Association.

REPORT OF COMMITTEE ON ADJUSTMENT OF CREDITS

Michigan School Masters' Club:

Your president appointed as a committee on adjustment of credits Messrs. Albertus Darnell, College of the City of Detroit, John S. Page, Howell Public Schools, John A. Craig, Muskegon High School, and Geo. W. Patterson, College of Engineering, University of Michigan.

The committee has held one meeting at Lansing, December 6th, 1923, at the time of the High School Principals' Association Meetings in that city, and discussed adjustment of credits with special reference to the College of Engineering of the University of Michigan.

It is the opinion of your committee that the relations between the public schools and the College of Engineering are on a most friendly basis, and that little if any change should be made in adjustment of credits, as all interested parties are cooperating to preserve the good relations.

It is the opinion of your committee that there is no danger of any difficulties arising in the future, which will not be adjusted to the satisfaction of every one.

Respectfully submitted,

Geo. W. Patterson, Chairman.

TREASURER'S REPORT, 1923-24

1923

RECEIPTS

Balance as per last report, Commercial Department.....	\$ 264.34
Balance as per last report, Savings Department.....	27.66
March 22, Deposit dues and banquet receipts.....	182.00
March 24, Deposit dues and banquet receipts.....	86.50
March 26, Deposit dues and banquet receipts.....	56.25
March 29, Deposit dues and banquet receipts.....	188.00
March 29, Deposit dues and banquet receipts.....	594.00
March 30, Deposit dues and banquet receipts.....	198.40
March 31, Deposit dues and banquet receipts.....	162.00
March 31, Deposit dues and banquet receipts.....	64.25
May 19, Deposit sale of Journal.....	70.00
June 20, Deposit back dues.....	34.00
June 23, Deposit back dues.....	2.00
Sept. 26, Deposit back dues.....	9.00
1924	
Jan. 12, Deposit back dues.....	2.00
Jan. 12, Deposit ads.....	30.00
Jan. 26, Deposit sale of Journal.....	50.00
Feb. 23, Deposit sale of Journal.....	70.00
March, Deposit interest saving deposits.....	6.41
Total	\$2,096.81

DISBURSEMENTS

March 10, Check No. 600 to H. J. Abbott, P. M., stamps for programs.....	\$ 10.00
March 12, Check No. 601 to H. J. Abbott, P. M., stamps for programs.....	25.00
March 15, Check No. 602 to H. J. Abbott, P. M., stamps for programs.....	15.00
March 31, Check No. 603 to L. P. Jocelyn, for salary.....	150.00
March 31, Check No. 604 to Michigan Union, for 268 banquet tickets.....	335.00
March 31, Check No. 605 to Nellie Breathwaite, clerk.....	7.10
March 31, Check No. 606 to Emma Kapp, clerk.....	6.80
March 31, Check No. 607 to Ella Schenk, clerk.....	16.50
March 31, Check No. 608 to Prof. H. L. Miller, Lecture.....	63.00
March 31, Check No. 609 to Prof. W. C. Reaves, Lecture.....	52.18
March 31, Check No. 610 to Western Union, telegram H. N. Chute.....	.82
April 16, Check No. 611 to University of Michigan, janitor service.....	8.80
April 16, Check No. 612 to M. L. Larned, paper and twine.....	3.90
April 17, Check No. 613 to Wm. Prakken, President's expenses.....	9.47
April 23, Check No. 614 to D. H. Davis, Geog. Conference.....	2.00
April 25, Check No. 615 to L. A. Butler, Committee work.....	8.55
May 2, Check No. 616 to G. W. Murdock, Committee work.....	15.40
May 24, Check No. 617 to Boy Scouts, doorkeepers.....	25.00
May 31, Check No. 618 to Ella Schenk, clerk.....	18.80
June 12, Check No. 619 to H. J. Abbott, P. M., stamps chemistry committee..	10.00
June 14, Check No. 620 to H. J. Abbott, P. M., stamps chemistry committee..	6.00
June 14, Check No. 621 to H. J. Abbott, P. M., stamps for Journal.....	15.00
June 15, Check No. 622 to Ella Schenk, clerk.....	5.60

MICHIGAN SCHOOLMASTERS' CLUB

June 15, Check No. 623 to H. J. Abbott, P. M., stamps for Journal.....	10.00
June 19, Check No. 624 to Mrs. L. P. Jocelyn, office expense 1 year.....	211.00
June 19, Check No. 625 to Sid W. Millard, receipts, badges.....	42.75
June 19, Check No. 626 to Ann Arbor Press, programs, etc.....	250.50
Sept. 28, Check No. 627 to L. P. Jocelyn, salary.....	150.00
Sept. 29, Check No. 628 to Michigan Union, committee lunches.....	2.25
Nov. 5, Check No. 629 to A. C. Pack, P. M., stamps.....	2.00
Dec. 31, Check No. 630 to L. P. Jocelyn, salary.....	75.00
1924	
Jan. 26, Check No. 631 to A. C. Pack, P. M., stamps.....	2.00
Feb. 6, Check No. 632 to Ann Arbor Press, printing Journal.....	326.79
March 4, Check No. 623 to A. C. Pack, P. M., stamps.....	2.00
Total	\$1,884.21
In Savings Department	34.07
In Commercial Department	178.53
Total	\$2,096.81

Audited and found correct—Katherine G. Hine, C. S. Larzelere, Auditing Committee.

Program of General Sessions

(Admission by badge)

Officers of the Michigan Schoolmasters' Club, 1924

President—Lila E. Fyan, Northeastern High School, Detroit.
Vice-President—W. F. Lewis, Northern State Normal, Marquette.
Secretary-Treasurer—Louis P. Jocelyn, Ann Arbor.
Members of the Executive Committee—Professor A. R. Crittenden,
University of Michigan; Professor C. S. Larzelere, Central State
Normal School; Principal H. R. Atkinson, Battle Creek.

Thursday Morning, April 3

Newberry Hall

Chairman—Lila E. Fyan, Detroit.

9:00 o'clock, Eastern Standard Time

1. Short Business Meeting.
2. Conference—"Status of the Social Sciences."
 - (a) To What Extent Should the Present Day Social and Economic Problems Be Presented in the Class Room, Arthur Dondineau, Detroit.
 - (b) What Should be Included in the Course of Study in History in the Senior High School?—Professor W. A. Frayer, University of Michigan. Professor H. A. Hill, University of Chicago.

11:00 o'clock, Eastern Standard Time

Hill Auditorium

3. Address: "Some Aspects of American Higher Education,"
President Marion L. Burton, University of Michigan.

Thursday Afternoon, April 3

3:45 o'clock, Eastern Standard Time

Auditorium, Natural Science Building

Lecture: The New Meaning of Geography in American Education, Dr.
Wallace W. Atwood, President of Clark University.

Banquet

5:45 o'clock, Eastern Standard Time

Michigan Union Banquet Hall

Reception and Banquet for all members of the Michigan Schoolmasters' Club.

The Schoolmasters' Club dinner will be served at the Michigan Union at 5:45 o'clock. As the Banquet Hall of the Union will seat only 500, the members are urged to reserve their tickets in advance, by writing the Secretary, Mr. L. P. Jocelyn, Ann Arbor, Michigan, on or before April 3. Ticket, \$1.25.

Concert

8:00 o'clock, Eastern Standard Time

"Hiawatha's Wedding Feast," Ann Arbor High School Chorus of 400 voices and assistant soloists under direction of Mr. George Oscar Bowen, assisted by Cass Technical High School (Detroit) Orchestra, Clarence Byrn, Director.

(Compliments of the University Musical Society. Complimentary to all members of the Schoolmasters' Club who pay their dues for 1924 in advance. Tickets for main floor will be sent by mail to all members whose dues are in the hands of the Secretary, L. P. Jocelyn, by March 31. Tickets may also be procured at the Secretary's desk, at headquarters, on Wednesday and Thursday, April 2 and 3.

Friday Morning, March 30

9:30 o'clock, Eastern Standard Time

Hill Auditorium

Chairman—Lila E. Fyan, Detroit.

Secretary—L. P. Jocelyn, Ann Arbor.

1. Business Meeting.

(a) Reports of Committees appointed on Thursday.

(b) Report of Committee on Experimental Studies and Investigations.

11:00 o'clock

2. Address: Towards an American Type, Professor Stuart P. Sherman, University of Illinois.

To insure their seats, members of the Club should be in the Auditorium by 10:30 o'clock.

3:00 o'clock

Natural Science Auditorium

Lecture: The Importance of Eastern European History, Professor Robert J. Kerner, University of Missouri.

4:15 o'clock

Newberry Hall

Lecture: Greece and Rome, Prof. Grant Showerman, University of Wisconsin.

Friday, April 4

8:00 o'clock

Whitney Theatre

Special performance of University Comedy Club's Annual Play, "Captain Applejack." Direction of Professor J. Raleigh Nelson. This will afford those interested in play production an opportunity to see the work of the oldest dramatic organization at the University. The performance itself will be attractive to all who enjoy a good play. Tickets, \$2.50, \$2.00, \$1.50, \$1.00. Mail orders to W. D. Roesser, 707 Oxford Road, Ann Arbor.

Saturday, April 5

12:30 o'clock

Barbour Gymnasium

Annual Luncheon of Women's League. All Alumnae are invited to attend. Tickets, \$1.00, may be obtained from the office of the Dean of Women, and all reservations should be made by Wednesday, April 2.

Program of Conferences

CLASSICAL CONFERENCE

Thursday Afternoon, April 3

Chairman—Professor Francis W. Kelsey, University of Michigan.

Vice-Chairman—Mabel J. Mather, Senior High School, Sault Ste. Marie.

Secretary—Dorothy M. Roehm, Northwestern High School, Detroit.

1:30 o'clock

Room 6, University Library

1. Exhibit of Papyri, Manuscripts and Facsimiles, Professor H. A. Sanders, University of Michigan.

2:30 o'clock

Auditorium, Newberry Hall

(Admission by badge)

2. Essentials and Non-Essentials, Professor B. L. D'Ooge, State Normal College, Ypsilanti.
3. A Transplanted American, Miss Mary Pearl, Graduate Student, University of Michigan.
4. Three Greek Manuals of Military Science, Dr. John B. Titchener, University of Michigan.
5. The Priest in Early Times, Colonel Thomas Callan Hodson, London, England.

4:15 o'clock

Auditorium, Newberry Hall

6. University Lecture: Rome of Today and the Classics, Professor Grant Showerman, University of Wisconsin.

Friday Noon, April 4

Luncheon

12:15 o'clock

In the Parlors of the Congregational Church

- A social hour with Professor H. A. Sanders as chairman and brief talks by Professor Grant Showerman and others. Tickets, 75 cents, can be secured at the door.

Friday Afternoon, April 4

2:30 o'clock

Auditorium, Newberry Hall

(Admission by badge)

7. Brief Business Meeting.
8. A Six-Year Latin Course, Miss Susan Pillsbury, Liggett School, Detroit.
9. Should Latin Examination Questions Be Prepared for the High Schools by a University Committee?, Miss Ethel B. La More, Sault Ste. Marie.

10. What College Freshmen Find Hardest in Latin, Professor A. R. Crittenden, University of Michigan.
11. What Is Hardest to Teach in High School Latin, Miss Elsie E. Cooper, Northwestern High School, Detroit.
12. Exhibit of Recent Books and Illustrated Material of Interest to Classical Teachers, Professor James E. Dunlap, and Dr. J. B. Titchener, University of Michigan.

4:15 o'clock

Auditorium, Newberry Hall

13. University Lecture: Greece and Rome—A Study in Cultural Relations, Professor Grant Showerman, University of Wisconsin.

MODERN LANGUAGE CONFERENCE .

Friday Afternoon, April 4

Luncheon at 12:15 at the Michigan Union (75 cents). Those expecting to be present are requested to notify the secretary, Professor A. G. Canfield. A business meeting of the Michigan Association of Modern Language Teachers will be held after the luncheon.

2:00 o'clock

Room 203, University Hall

Chairman—Principal F. L. Bliss, Jackson.

Secretary—Professor A. G. Canfield, University of Michigan.

1. Laboratory Use of Texts, Miss Grace A. Hill, Detroit.
2. Departmental Libraries for High Schools, Miss Cordelia M. Hayes, Grand Rapids.
3. How Shall We Handle Our Outside Reading. Discussion led by Mr. Gordon E. Van Loon, Highland Park.
4. How Shall We Measure Results of Foreign Language Study? Discussion led by Professor A. G. Canfield, University of Michigan.

ENGLISH CONFERENCE

in Charge of

MICHIGAN COUNCIL OF TEACHERS OF ENGLISH

Thursday Afternoon, April 3

Chairman—George Starr Lasher, University of Michigan.

Secretary—Miss Mary Derby, Lansing High School.

1:45 o'clock

Pattengill Auditorium, High School.

Round Table

Teaching Problems in Michigan High Schools.

(Speakers introducing the various topics will be limited to ten minutes. After each talk a general ten-minute discussion will be held.)

1. Should Composition and Literature Be Taught As Separate Courses According to the Recommendations of the North Central Association? Miss Cora M. Willsey, Traverse City.

2. Should Grammar Be Taught in the High Schools as a Definite Course? Mr. Louis Foley, Western State Normal School.
3. Should the History of English Literature be Taught in High Schools? Robert Granville, Ann Arbor High School.
4. Should the Study of Modern Literature Have a Place in High Schools? Miss Caroline Barber, Lansing High School.
5. Should English Be Definitely Correlated With Other Subjects in the Curriculum, Miss A. Bess Clark, Northern State Normal School.
6. Should Minimum Essentials in Composition Work Be Adopted for Spelling, Punctuation, and Grammar? Miss Karolena M. Fox, Central State Normal School.

Friday, April 4

1:45 o'clock

Pattengill Auditorium, High School

1. Oral Composition Contest.

Representatives of Arthur Hill High School of Saginaw, W. S., and the Kalamazoo, Battle Creek, Saginaw, Lansing, Port Huron and Ypsilanti High Schools will participate in an oral composition contest under the following conditions:

Contestants will draw for places on the program. Exactly one hour before the contestant is to speak he will be admitted to a room and given a list of ten subjects of such general interest that he will have little difficulty in finding one that he can treat adequately. He will have an opportunity during the hour to outline his talk, but he will have to depend entirely upon himself for the material he uses. He will be expected to talk at least four minutes but not more than six, a warning being given at the end of five minutes. Judgment will be based upon his ability to select material, organize it, and present it in an impressive way.

II. Business Session.

III. Awarding of Contest Trophy.

IV. Discussion of Oral Composition.

1. Should oral composition contests take the place of formal debates?
2. Should oral composition be a part of the English program carried on by English teachers or should it be taught by teachers of public speaking?
3. What proportion of the time allotted to composition should be given to oral work?
4. What should be the specific aims of oral composition?
5. How should oral composition be correlated with written?
6. How can correct speech habits be secured through oral composition?

PUBLIC SPEAKING AND DRAMATIC CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

Auditorium, University Hall

Chairman—Ira Beddow, Central State Normal School.

Secretary—Louis Eich, University of Michigan.

1:30 o'clock

1. A Program of Speech Education for Elementary Grades, Miss Clara B. Stoddard, Director of Speech Education, Detroit.
2. A Program of Speech Education for Junior High Schools, Mr. Harry G. Miller, Director of Speech Education, Central Junior High School, Saginaw.
3. A Program of Speech Education for Senior High Schools, Miss Anne McGurk, Department of Speech, Ann Arbor High School.
4. A Program for State Normal Schools in Preparing Teachers of Speech for Elementary and High Schools, Miss Lousene Rousseau, Head of the Department of Speech, Western State Normal School.
5. The Work of the University in Preparing Teachers of Speech for High Schools, Normal Schools, and Colleges, Prof. Ray K. Immel, Department of Public Speaking, University of Michigan.

Addresses limited to fifteen minutes. Opportunity will be given for discussion at the close of each address.

HISTORY CONFERENCE**Thursday Afternoon, April 3**

Room C-3, High School

(Admission by badge)

Chairman—Alice Vander Velde, Grand Rapids.

Secretary—Edith Hoyle, Ann Arbor.

1:30 o'clock

1. Plans for the Social Sciences in the University High School, Dr. O. W. Stephenson, University High School.
2. The High School Course in Sociology, Miss Marion Creaser, Hastings.
3. The Teacher at the Columbus Meeting of the American Historical Association, Dr. Mary Hinsdale, Grand Rapids Junior College.
4. The Technique of Historical Method as a Teaching Asset, Dr. Nancy Scott of Western State Normal School.
5. Some Recent Developments in British Politics, Dr. Arthur Cross, University of Michigan.

Friday Afternoon, April 4

Auditorium, Natural Science Building

3:00 o'clock

6. The Importance of Eastern European History, Professor Robert J. Kerner, University of Missouri.

CHEMISTRY-PHYSICS CONFERENCE**Thursday, April 3**

(Admission by badge)

West Lecture Room, Physics Building

1:30 o'clock

Chairman—J. S. Brown, College of the City of Detroit.

Secretary—W. N. St. Peter, University of Michigan.

1. Shall We Teach High School Physics in College? M. A. Wheatley, College of the City of Detroit.
Discussion opened by M. Buell, Ann Arbor High School.
2. Report of the Committee of the American Chemical Society on the Correlation of High School and College Work, R. K. McAlpine, University of Michigan.
Discussion opened by F. C. Irwin, College of the City of Detroit.
3. Interesting the Public in Physics, J. E. Fox, Western State Normal School.
4. Efficiency and Economy of Time in the Handling of Classes, K. P. Brooks, Central State Normal School.
5. Description of the New Physics Building at the University of Michigan, D. L. Rich, University of Michigan.
Prof. Rich's talk will be followed by an inspection trip through the new building under his personal guidance.

The usual Chemistry-Physics luncheon will be held in Lane Hall Friday at 12:15 P. M. (75c per plate). Please leave word with the secretary of this section if you will attend in order that sufficient places may be reserved.

Friday, April 4

West Lecture Room, Physics Building

1:30 o'clock

6. The New Theories of Light in Their Relation to the Atomic Theory, Dr. Oskar Klein, University of Copenhagen.
7. The Significance of Surface Films in Practical Cases of Heat Transfer, W. L. Badger, University of Michigan.
8. Business Meeting.
Experiments and Lecture Demonstrations by Representatives of the High Schools, Normals and Colleges of the State.

MATHEMATICS CONFERENCE**Thursday Noon, April 3**

Michigan Union

12 o'clock

Mathematics Luncheon. Price 85 cents. Members of the Conference, members of the Mathematical Association of America and others interested are invited to attend and get acquainted.

Note—Plates may be reserved by mailing a post card to T. H. Hildebrandt, 1930 Cambridge Road, Ann Arbor, by March 31.

Thursday Afternoon, April 3

(Admission by badge)

Room B, Law Building

1:30 o'clock

Chairman—Professor Harold Blair, Western State Normal School.

Secretary—Miss Jane L. Matteson, State Normal College.

1. The Teaching of Mathematics in the Rural Schools, Mrs. Viola R. Moore, Commissioner of Schools, Hillsdale County.
2. Summation of Series, Professor H. C. Carver, University of Michigan.
3. When Is a Student Ready for High School Mathematics? Professor Samuel Renshaw, Western State Normal School.
4. When Does an Appreciation of Mathematics Begin. Professor John P. Everett, Western State Normal School.
5. The Possible Influence of a Social Program in the Mathematics of the First Nine Grades on Senior High School Mathematics, Miss Florence Stratemeyer, Detroit Teachers College.
6. Discussion.

Friday Afternoon, April 4

(Admission by badge)

1:30 o'clock

Room B, Law Building

7. Problems and Exercises in Geometry, Mr. John De Haan, Grand Rapids Christian High School.
8. A Quarter Century of Mathematics Teaching, Professor Webster H. Pearce, Central Michigan Normal School.
9. The C. E. E. B. on the Drawing of Geometrical Figures, Professor John W. Bradshaw, University of Michigan.
10. Discussion led by Professor Louis C. Karpinski, University of Michigan.
11. Business Meeting.

BIOLOGICAL CONFERENCE**Thursday, April 3**

(Admission by badge)

Natural Science Building, Room F-214

1:30 o'clock

Chairman—Miss Elisabeth Sundstrom, Western High School, Detroit.

Secretary—Miss Clara Bailey, Cass Technical High School, Detroit.

1. The Correlation of English and Biology, Mr. E. L. Miller, Supervising Principal of High Schools, Detroit.
2. Biological Note Books, Mr. Frank Wood, Northwestern High School, Detroit.
3. General Discussion.
4. The Correlation of Health Education and Biology, Professor Jessie Phelps, Michigan State Normal College.
5. Mechanism vs. Vitalism: Must We Choose? Professor Oran Raber, University of Michigan.

Friday, April 4

12:00 o'clock

Luncheon—Room B-100

2:00 o'clock

Room F-214

6. Business Meeting.
7. Recent Work on the Structure of Protoplasm, Dr. William Seifriz, University of Michigan.
8. Conservation of the Wild Life of Michigan, Mr. P. S. Lovejoy, Director of Land and Economic Survey.

**JOINT MEETING OF COMMERCIAL AND MICHIGAN ASSOCIATION
OF BUSINESS SCHOOLS CONFERENCES****Friday Afternoon, April 4**

12:00 o'clock

Vocational Luncheon—Michigan Union

J. L. Holtsclaw, Director of Commercial Education, Detroit, will speak for the Commercial Section.

Chairman—C. A. Harwick, Southwestern High School, Detroit.

Secretary—Miriam O. Barton, Ypsilanti.

Room 17, High School

(Admission by badge)

2:00 o'clock

1. Human Nature and the Changing Order, Professor W. D. Henderson, University of Michigan.
2. Aims for Elementary Accounting, B. F. Frost, High School of Commerce, Detroit.
3. Class Procedure in Typewriting, Adelaide B. Haikes, Gregg School, Chicago.
4. National Outlook for Commercial Education, D. W. McMillan, Southwestern High School, Detroit.
5. Business Meeting.

GEOGRAPHY CONFERENCE**Thursday, April 3**

(Admission by badge)

1:45 o'clock

Natural Science Building, Room G-217

Chairman—Alice Camerer, Detroit Teachers' College.

Secretary—George F. Howe, Wyandotte.

1. The Teaching of Geography, President Wallace W. Atwood, Clark University, Worcester, Mass.
2. Geographic Principles and Their Relation to Teaching, P. E. James, University of Michigan.
3. Cities in Geography, M. S. W. Jefferson, Michigan State Normal College.

Friday, April 4

1:45 o'clock

4. Quantitative Geographic Studies, K. C. McMurry, University of Michigan.
5. The What, Why and How of Ninth Grade Geography, Doris Cline, Northwestern High School, Detroit.
6. Needed—One Year of Geography in the High School, Why, When, What and How, R. D. Calkins, Central State Normal.
7. Discussion led by F. W. Frostic, Wyandotte.
8. Business Meeting.

ART CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

Room D, Alumni Memorial Building

2:00 o'clock

Chairman—Bruce M. Donaldson, Asst. Professor Fine Arts, University of Michigan.

Secretary—Miss Susan Tribble, Ann Arbor.

1. Business Meeting; Election of Officers.
2. Museum and the Public School, Reginald Poland, Educational Secretary, Detroit Institute of Fine Arts.
3. Art and Industry, Alfred G. Pelikan, Instructor in Architecture, University of Michigan.
4. Art Instruction in the Public School. (Speaker to be announced later.)

EDUCATIONAL PSYCHOLOGY CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

Tappan Hall, Room 203

2:00 o'clock

Chairman—Professor Clifford Woody, University of Michigan.

Secretary—Professor Elmer Wilds, Western State Normal.

PSYCHOLOGY OF ATTITUDES

1. Genesis and Function of Attitudes, Paul V. Voelker, President of Olivet College.
2. The Influence of Certain Non-Intellectual Factors in Learning Upon the Scholarship of College Freshmen, Theo. W. H. Irion, Professor of Education, Michigan State Normal College.
3. Social Influence and Life Attitudes, Adelbert Ford, University of Michigan.
4. Influence of Attitudes on Health, John S. Sundwall, Professor of Hygiene and Public Health, and Director of Student Welfare, University of Michigan.
5. Business Meeting.

HOME ECONOMICS CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

Room B-1, High School

2:00 o'clock

Chairman—Alice E. Blair, Western State Normal School.

Secretary—Emma P. Garrison, M. A. C.

1. Home Economics for Every High School Girl, Miss Helen Livingston, Cass Technical High School, Detroit.
2. Practical Dietetics in a High School Course, Miss Mabel Rogers, Michigan Agricultural College.
3. Sewing and Millinery as Offered in Our High Schools, Miss Maude McMullen, Ann Arbor Schools.
(Vocational Luncheon at Michigan Union, 12 M.)

HIGH SCHOOL LIBRARIES CONFERENCE**Thursday Afternoon, April 3**

(Admission by badge)

Room 110, General Library

2:00 o'clock

Chairman—Miss Faye Irene Beebe, Southeastern High School, Detroit.
 Secretary—Mr. S. W. McAllister, Public Library, Ann Arbor.

1. The Newspaper as a Field for Librarians, Mr. Lee White, Librarian, Detroit News.
2. Writing and Book-Making of the Greeks and Romans, illustrated by papyri manuscripts and facsimiles from collection of the University. Professor Henry A. Sanders, Classical Department, University of Michigan.
3. Business Meeting.

Friday Afternoon, April 4

12:30 o'clock

Luncheon, Michigan Union. If you plan to attend, please notify Mr. McAllister by March 27.

4. The New International Drama, Mr. Frank G. Tompkins, Director of Dramatics, College of the City of Detroit.
5. Chinese Schools and Libraries, Miss Katherine H. Wead, Ann Arbor.
6. Round Table led by Miss Grace Winton, President High School Library Association, Detroit.
 1. Library the Socializing Factor in the High School, Miss Marion Lovis, Hutchins Intermediate School, Detroit.
 2. Student Co-operation, Mrs. Eva Bowen Small, Northern High School, Detroit.
 3. Recent Literature on High School Libraries, Miss Lillian Stewart, Western High School, Detroit.
 4. New and Simplified Methods in Technical Work, Miss Ruth Irwin, Highland Park High School.
7. Business Meeting Concluded.

ADMINISTRATIVE TEACHERS' CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

12:15 o'clock

Chairman—Elizabeth W. Hawley, Central High School, Detroit.
 Secretary—Miss Emma Weitbrecht, Ann Arbor.

Luncheon at Methodist Church Parlors, followed immediately by program.

Reservations for luncheon should be made to Secretary by April 1.

Subject—"Our Children, The Torchbearers of the Future."

1. Legal Guidance, Dr. Allen Hoben, President of Kalamazoo College.
 Discussion—Miss Lyla Fyan, President Detroit Teachers' Association.
2. Home Guidance, Mrs. Edgar Kiefer, State President Parent-Teachers' Association.
 Discussion—Supt. E. E. Fell, Holland, Michigan.
3. Social Guidance (a) Mrs. W. R. Alvord, Highland Park, Michigan.
 (b) Jean Hamilton, Dean of Women, University of Michigan.
4. Business Meeting.

INDUSTRIAL EDUCATION CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

Room C-1, High School

2:00 o'clock

Chairman—C. G. Price, Director of Vocational Education, Battle Creek.

Secretary—J. B. High, Supervisor of Manual Training, Ann Arbor.

1. Address: Cooperation in Training for the Building Trades, E. L. Bowman, National Trade Extension Bureau, Evansville Indiana.

Round Table Discussions

2. Mechanical Drawing.
E. R. Kepler, Detroit, leader.
E. P. Chandler, Saginaw, E. S.
3. General Continuation Subjects.
Wallace Watt, Battle Creek, leader.
Mrs. Edith Young, Detroit.
4. Auto Mechanics and Machine Shop.
L. N. Bryant, Detroit, leader.
Fred Everest, Battle Creek.
- Household Mechanics.
George Tabraham, Western State Normal, leader.
Leslie Edmunds, Royal Oak.

Michigan Society for Vocational Education Luncheon**Friday, April 4**

Michigan Union, Room 318

12:10 o'clock

What one thing is most needed to improve—

1. Agricultural Education in Michigan? B. A. Walpole, Assistant Professor of Agricultural Education, Michigan Agricultural College, Lansing, Michigan.
2. Commercial Education in Michigan? J. L. Holtsclaw, Director of Commercial Education, Detroit, Michigan.
3. Home Economics in Michigan? Alice E. Blair, Director of Home Economics, Western State Normal School.
4. Industrial Education in Michigan? E. L. Bowman, Educational Director, National Trade Extension Bureau, Evansville, Indiana.

AGRICULTURAL CONFERENCE**Friday Afternoon, April 4**

(Admission by badge)

Room C, Law Building

2:00 o'clock

Chairman—R. G. Voorhorst, Flint.

1. The Part That Manual Arts Subjects Take in the Education of the Agricultural Student, Percy Angove, Assistant Supervisor of Industrial Education, Lansing.

2. Principles of Botany That Should be Taught to Every Agricultural Student, B. A. Walpole, Assistant Professor of Agricultural Education, M. A. C.
3. Principles of Zoology That Should Be Taught to Every Agricultural Student, A Member of the Department of Zoology, M. A. C.
4. Legal Knowledge That Should Be Taught to Every Agricultural Student. Speaker to be secured.

PHYSICAL EDUCATION CONFERENCE

Chairman—Dr. John Sundwall, University of Michigan.

Secretary—Elmer D. Mitchell, University of Michigan.

Thursday Afternoon, April 3

(Admission by badge)

Sarah Caswell Angell Hall

(in Barbour Gymnasium)

2:00 o'clock

1. Chairman's Address.
2. Progress of Physical Education in the State of Michigan, A. F. Westphal, Department of Public Instruction, Lansing, Michigan.
3. Demonstrations Women's Physical Education Department, Miss Ethel McCormick, Director, and Men's Physical Education Department, Dr. George May, Director.

Women (in Barbour Gymnasium)

- (a) Regular Class Drill—General University Students.
- (b) Clogging—Professional Students in Physical Education.
- (c) Captain Basketball Game—Professional Students.
- (d) Dance Fantasy—Professional Students.

Men (in Waterman Gymnasium) *

- (a) Special Exhibitions.
 - Boxing
 - Wrestling
 - Fencing
 - Apparatus Work.
- (b) Regular Class Activities (Required work for Freshmen Students)
 - Mass Wrestling
 - Gymnastic Apparatus
 - Mass Boxing
 - Relay Races
 - Tug of War

4:05 o'clock

Sarah Caswell Angell Hall

5. Address, Dr. James W. Linn, University of Chicago. "Coaching Versus Teaching."

Friday Afternoon, April 4

(Admission by badge)

Sarah Caswell Angell Hall

(in Barbour Gymnasium)

2:00 o'clock

1. Physical Education in the Cleveland City Schools, Floyd Rowe, Director of Physical Welfare, Cleveland, Ohio.
2. Teachers Plan of Health Inspection in the Public Schools, Dr. Carl E. Buck, Epidemiologist, Detroit, Michigan.
3. Discussion and Business Meeting.

CONFERENCE OF DEANS OF WOMEN AND ADVISORS OF GIRLS**Thursday, April 3**

4:00 o'clock

Michigan Union

"Social Standards," Dr. A. M. Barrett, University of Michigan.

6:00 o'clock

Dinner at Michigan Union

All Deans of Women and advisors of girls are urged to arrange for reservations, by notifying Miss Zelma Clark, Martha Cook Bldg.

EVENING SCHOOL CONFERENCE**Friday Morning, April 4**

(Admission by badge)

Pattengill Auditorium, High School

9:00 o'clock

Chairman—J. W. Slaughter, Lansing.

1. Unit Courses, Geo. B. Frazee, Principal Grand Rapids Vocational School.
General Discussion.
2. Deposits or Fees Required of Evening School Students, G. L. McCulloch, Asst. Supt. of Schools, Jackson.
General Discussion.
3. How to Hold Students in Evening Classes, F. L. Allen, Principal Arthur Hill Trade School, Saginaw.
General Discussion.
4. Some Problems of Administration of Americanization Classes, F. S. DeGalan, Supervisor of Evening and Summer Schools, Detroit.
General Discussion.
5. Business Meeting.

EXHIBITS

1. An exhibit of material illustrating famous printing presses, ancient and modern, will be shown in the main corridor of the University Library.

2. An exhibit of papyri, manuscripts and facsimiles will be shown on Thursday at 1:30 o'clock in Room 6, University Library.

MUSIC CONFERENCE

Chairman—William W. Norton, Flint.

Secretary—Nora C. Hunt, Ann Arbor.

The Music Conference will meet for luncheon at the Michigan Union at 12 o'clock, Eastern Standard Time, Thursday, April 3. The following program will be given at the close of the luncheon:
Musical Selection.

1. Requirements for State Certification of Music Supervisors, Thomas E. Johnson, State Superintendent of Public Instruction.

Discussion: George Oscar Bowen, University School of Music.
Eleanor Kelley, Hillsdale College, Cons. of Music.
Clyde E. Foster, Michigan State Normal College.
Harper C. Maybee, Western State Normal School.
J. Harold Powers, Central State Normal School.

2. Suggestive Courses in Piano, Violin, Voice, etc., to be used as a High School Standard in Granting Credit for Outside Music Study, Charles H. White, Supervisor of Music, Bay City.
3. Music as an Entrance Credit in Michigan Colleges, Earl V. Moore, Director University School of Music.
4. How Can the Federation of Music Clubs, the Schoolmasters Club, the Music Sections of the M. S. T. A., and the Michigan State Music Teachers Association Co-operate Toward Definite Common Ends?, Mrs. Elmer James Ottoway, President of Michigan Federation of Music Clubs, and Chairman of Public School Music, National Federation of Music Clubs.
5. Music Work in Vocational High School, Clarence Byrn, Cass Technical High School, Detroit.

Members of the Schoolmasters' Club, 1924

Members for Twenty or More Consecutive Years

ANN ARBOR Chute, H. N. Essery, E. E. Jocelyn, L. P. Nutt, H. D. Slauson, H. M. Wines, L. D.	DETROIT, NORTHERN Bartlett, A. E. Isbell, W. N. Miner, Mary L. DETROIT, SOUTH- EASTERN Corns, J. H. Phelps, Nancy S. DETROIT TEACH- ER'S COLLEGE Conover, L. Lenore JACKSON Marsh E. O. KALAMAZOO, WESTERN NORMAL Burnham, Ernest Everett, J. P. LANSING Gallup, E. E. MARQUETTE, NORTHERN NORMAL Lewis, W. F.	MT. PLEASANT, CENTRAL NORMAL Warriner, E. C. OAK PARK, ILL. Lee, L. B. SUPERIOR, WIS. Wade, C. G. UNIVERSITY OF MICHIGAN Cross, A. L. Bradshaw, J. W. Dow, E. W. Finney B. A. Kelsey, F. W. Markley, J. L. Ziwet, Alex. YPSILANI Ross, De Forrest YPSILANTI, NORMAL COLLEGE D'Ooge, Benj. L. Harvey, N. A. Lyman, E. A. Peet, B. W.
BATTLE CREEK Coburn, W. G.		
DETROIT Arbury, F. W. Bishop, Mrs. H. A.		
DETROIT, CASS TECHNICAL Cooke, C. S.		
COLLEGE OF THE CITY OF DETROIT Bates, F. O. Irwin, F. C.		
DETROIT, EASTERN Pettee, Edith E.		

Members for Ten or More Consecutive Years

ADRIAN Reed, E. J. ALBION COLLEGE Goodrich, F. S. ANN ARBOR Adams, O. V. Bennett, Ella M. Butler, L. A. Chute, H. N. Essery, E. E. Forsythe, L. L. George, Louise Hamilton, F. G. High, J. B. Highley, A. M. Jocelyn, L. P. Kirchhofer, Marie Nutt, H. D. O'Brien, Sarah Robison, Cora Schaible, Ida M. Slauson, H. M. Weinmann, Louise Wines, L. D.	BATTLE CREEK Atkinson, H. R. Coburn, W. G. BIG RAPIDS Ferris, W. N. DETROIT Arbury, F. W. Bishop, Mrs. H. A. Boyer, C. J. Cody, Frank Guys, Alice V. Kepler, F. R. Merrill, John Shaw, E. R. Trybon, J. H. DET. CASS TECH. Comfort, B. F. Cooke, C. S. Farnsworth, Mary F. DETROIT CENTRAL Bishop, Helen L. Bowerman, C. B. Copeland, Cornelia A. Hine, Katherine G.	Malcomson, Rachel A. Mutschel, Matilda. Nielson, N. C. Stocking, W. R., Jr. COLLEGE OF THE CITY OF DETROIT Bates, F. O. Chase, Ethel W. B. Darnell, Albertus Irwin, F. C. Levin, S. M. DETROIT EASTERN Fuhry, E. G. Harvey, Caroline C. Pettee, Edith E. Strubel, R. H. DETROIT NORTHEASTERN Cooper, L. G. Fyan, Lila E. Raycraft, R. E. DET. NORTHERN Bartlett, A. E.
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Isbell, W. N.	Arbaugh, W. B.	ST. JOHNS
Miller, E. L.	Knapp, T. J.	Buck, F. P.
Miner, Mary L.	Prakken, Wm.	SUPERIOR, WIS.
Tanis, J. E.	Smith, R. H.	Wade, C. G.
DETROIT	Van Loon, G. E.	UNIVERSITY
NORTHWESTERN	HILLSDALE	Bonner, Campbell
Alley, Sadie M.	Mauck, J. W.	Bradshaw, J. W.
Condon, Gertrude R.	HOWELL	Canfield, A. G.
Jones, A. F.	Sharpe, E. Alma	Cooley, M. E.
Porter, J. E.	JACKSON	Crittenden, A. R.
Rivett, B. J.	Marsh, E. O.	Cross, A. L.
Wentworth, W. H.	KALAMAZOO	Davis, C. O.
DETROIT	COLLEGE	Dow, E. W.
SOUTHEASTERN	Praeger, W. E.	Edmonson, J. B.
Corns, J. H.	KALAMAZOO, WEST-	Finney, B. A.
Phelps, Nancy S.	ERN NORMAL	Ford, W. B.
Thompson, E. C.	Burnham, Ernest	Hall, A. G.
Whitney, Edward	Everett, J. P.	Kelsey, F. W.
DETROIT,	LANSING	Kraus, E. H.
SOUTHWESTERN	Gallup, E. E.	Lichty, D. M.
McMillan, D. W.	LINDEN	Markley, J. L.
Marsh, Alice L.	Burr, C. J.	Meador, C. L.
Murdock, G. W.	MARQUETTE,	Rich, D. L.
DETROIT, TEACH-	NORTH'N NORMAL	Running, T. R.
ERS' COLLEGE	Lewis, W. F.	Shull, A. F.
Conover, L. Lenore	Spooner, C. C.	Tilley, M. P.
Courtis, S. A.	MONROE	Van Tyne, C. H.
DETROIT WESTERN	Cantrick, G. T.	Wenley, R. M.
Chapman, I. E.	Gilday, Selma	Whitney, A. S.
Hempsted, Joanna K.	MT. PLEASANT,	Winkler, Max
Hickok, D. W.	CENTRAL NORMAL	Ziwet, A.
Liskow, Julia M.	Larzelere, C. S.	WYANDOTTE
Meiser, Augusta B.	Pearce, W. H.	Frostic, F. W.
Pitts, Dora H.	Warriner, E. C.	YPSILANTI
Waples, Marcia P.	MUSKEGON	Hardy, Carrie A.
Wilkinson, A. O.	Craig, J. A.	Ross, DeForrest
Wiltsie, Katherine D.	NILES	YPSILANTI,
Woodward, Mabel C.	Allen, Hilah L.	CLEARY'S BUS. COL.
EAST LANSING	OAK PARK, ILL.	Cleary, P. R.
M. A. C.	Lee, L. B.	YPSILANTI, NOR-
Bessey, E. A.	OXFORD, OHIO	MAL COLLEGE
FLINT	Bishop, Elizabeth L.	D'Ooge, B. L.
Puffer, W. J.	PONTIAC	Harvey, N. A.
Wellwood, J. E.	Travis, Ora	Lott, H. C.
GRAND RAPIDS	RIVER ROUGE	Lyman, E. A.
Greeson, W. A.	McDonald, A.	McKay, F. B.
HIGHLAND PARK	SAGINAW, E. S.	McKenny, Chas.
Altenburg, G. I.	King, Helen B.	Norris, O. O.
	Warner, W. W.	Peet, B. W.
		Pray, C. E.

List of Members for 1924

ADDISON

Marshall, C. E.

ADRIAN

Alexander, Effie

Binns, R. W.

Boyle, Cleo

Buck, Gertrude

Hall, O. I.

Jones, E. M.

Lowry, Hope

Miller, P. L.

Reed, E. J.

Tripp, G. J.

Warren, A. C.

Whitney, Esther

Wolverton, M. F.

ALBION

Harrington, Don

Harton, W. C.

Lorah, N. F.

Lords, Floyd

Mumbrue, H. F.

Pointer, Etta

Pratt, Belle

Vear, L. R.

ALBION COLLEGE

Carter, T. M.

Ewbank, H. L.

Goodrich, F. S.

Hall, V. C.

Harrop, A. H.

Hembdt, P. H.

McCulloch, A. J.

Rood, C. E.

Sleight, E. R.

ALLEGAN

Kennedy, Mrs. Emilia

ALMA

Van Hoesen, R.

ALMONT

Bishop, J. W.

ALPENA

Curtis, G. H.

ANN ARBOR

Abbott, Ethel

Adams, O. V.

Atkins, Edith Emma

Averill, F. G.

Avery, Eula

Bader, Edith M.

Bader, Harriet

Baker, Norma J.

Bell, Lola R.

Bennett, Ella M.

Benzin, Lina

Bernhardt, Esther

Bostedor, Edna

Bradshaw, Bess

Breed, Gertrude T.

Brock, Gertrude

Brown, Helen

Buckley, Dorothy

Butler, L. A.

Carlson, Hilda

Carson, Lottie

Cawley, Anna C.

Chute, H. N.

Collins, Gertrude

Conrad, Lucile

Dicken, Carrie L.

Dickey, Marjorie

Donahue, Eileen

Donnelly, Sara

Dowler, Mrs. Harriet

Duff, Lela

Eagleson Stuart

Eberbach, Lynda

Edmonson, Ruth

Eich, Marion

Ellett, Gayle

Essery, E. E.

Farley, Ruth

Fisk, Marjorie E.

Forsythe, L. L.

Freeman, E. B.

George, Louise

Gibbons, J. Winifred

Graham, Villa

Granville, Robert

Grennan, Mrs. J.

Hall, Hazel

Hamilton, Mrs. F. G.

Hamilton, F. G.

Hamilton, Isabelle

Hamlin, M. C.

Hannan, Bernice

Harrington, Katherine

Harrington, Margaret

Hedrick, Ethel

Henderson, Isabel C.

High, J. B.

Highley, A. M.

Hodson, Catherine E.

Hoffman, Edna

Honora, Sister M.

Hooper, Estelle

Howell, Blanche

Hoyle, Edith L.

Jensen, Ferne

Jocelyn, L. P.

Kahoe, Nellie M.

Keedle, Hazel

Kirchhofer, Marie

Koenig, A. J.

Lamb, Zelma Eileen

Lawton, Mildred

Leonhard, Fred D.

Lewis, Mary Ellen

Lewis, Sara

Loving, Nellie S.

Lutz, Henrietta

Lyons, D. F.

McAllister, S. W.

McCain, Nina

McCreery, Mrs. L. F.

McGregor, Mae

McGurk, Anna

McLouth, Olive

McMullen, Maude

Marschke, Emily

Mogk, Eugenia

Mortiboy, E. L.

Nash, Edna L.

Norton, C. H.

Nutt, H. D.

O'Brien, Sarah

Osborn, Lurene

Palmer, Mrs. J. V.

Parry, Edna D.

Purfield, Agnes H.

Purtell, Catherine

Reinhardt, Flora

Reynolds, Jane A. F.

Rieger, Alavanche G.

Robinson, Florence B.

Robison, Cora

Robison, Lillian J.

Roys, Leah

Russell, Josephine

Scarlett, Mary

Schaible, Ida M.

Seath, Lottie E.

Seeley, Frances

Sill, Margaret

Sill, Martha

Simmerson, Ethel

Sink, Maude F.

Skillen, Mary

Slauson, H. M.

Smith, Helen A.

Smith, Ivaleen

Staeb, Minnie

Stark, Evelyn

Steele, Anna B.

Stitt, A. C.

Taylor, Elsie

Taylor, Mary

Tefft, Evangeline G.

- Thompson, Mary L.
 Ticknor, Frances
 Tuckerman, Gladys
 Volz, Marie D.
 Vreeland, Maebelle
 Vreeland, W.
 Weick, Bertha M.
 Weinmann, Louise
 Weitbrecht, Emma
 Wheeler, Caroline
 White, D. S.
 Whiteford, Margaret
 Whitney, Blanche
 Wines, L. D.
 Winkel, Eva
 Winkler, Ethel M.
 Woessner, Alice
 Wondero, Ellen
- ARMADA**
 Delaforce, Florence
 Kosinka, Eugenia
 Miller, H. W.
 Poucher, Gertrude
- BATH**
 Huyck, E. E.
- BATTLE CREEK**
 Argubright, C. J.
 Atkinson, H. R.
 Balcomb, C. A.
 Bastedo, Melba
 Coburn, W. G.
 Cooper, Lenna F.
 Everest, F. S.
 Grover, Lucile
 Hazel, F. M.
 Price, G. G.
 Roth, Linda Gage
 Van Horn, Edna
 Watt, W. F.
- BAY CITY**
 Aeby, S. R.
 Allen, D. C.
 Anschutz, Irma
 Asman, Mabel I.
 Beese, Julia H.
 Bothe, Eva
 Burton, W. G.
 Butterfield, Geo. E.
 Butterfield, Gertrude
 Cansfield, A.
 Carlson, Mary
 Carver, Mable
 Clancy, Ida T.
 Day, Agnes A.
 Dersnah, E. L.
 Dilley, Lois
 Ferris, E. G.
 Frost, Dorothy
 George, J. H.
 Grubbs, Verna
 Gustin, C. S.
- Hand, Lena
 Hartley, Mary E.
 Hill, Faye
 Hobbs, Ada
 Keen, P. M.
 Killam, Olive
 La Rose, Lula
 Leas, Grace
 Lord, Henrietta
 McGregor, Nellie
 McIlhenny, Mary E.
 McKinney, Mary
 Maloney, Chas.
 Marm, Wilhelmina
 Marvel, Edith
 Merrill, Frances H.
 Miller, B. E.
 Nevitt, G.
 Nicholason, Clara
 Omans, G. A.
 Omans, Mrs. G. A.
 Payne, Grace
 Perrine, Susan
 Rogers, F. B.
 Royal, H. D.
 Runner, A. J.
 Schroeder, Matilda
 Shellenbarger, R. C.
 Sloan, N. B.
 Ten Eyck, H. E.
 Wedow, Clara
 White, C. H.
 Wilcox, Helen
 Yeakey, L. L.
- BELDING**
 Drybread, Marthena
 Skinner, S. J.
 Stevens, J. H.
 Wheeler, H. J.
- BENTON HARBOR**
 Heilig, Mabel
 Rice, C. A.
 Wood, B. D.
- BIG RAPIDS**
 Ferris, W. N.
- BIRMINGHAM**
 Harding, J. M.
- BLISSFIELD**
 Heusel, M. W.
- BRIGHTON**
 Swarzentraub, H.
- BROWN CITY**
 Thomson, C. J.
- CADILLAC**
 Pettitt, J. S.
- CALUMET**
 Gilmore, R. A.
- CAMDEN**
 DeMeritt, C. E.
- CASSOPOLIS**
 Sinclair, F. E.
- CEDAR SPRINGS**
 Phares, L. J.
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- CENTERVILLE**
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- CHARLOTTE**
 Keplinger, Marena
- CHELSEA**
 Clark, E. L.
 Clark, Mrs. Ethel L.
 Courtwright, Helen
 Dancer, Effie R.
 Eckenbeiger, Ella
 Gates, Gertrude
 Gates, Mrs. Iva
 Gritzner, Dorothy
 Howlett, Florence
 Lattin, Mrs. N. D.
 Mast, Helen
 Pittsley, Blanche
 Robinson, Mrs. Lilly
 Sturm, Luella
 Tulledge, Florence
- CHESANING**
 Goodenow, Reva S.
 Wilkinson, Marian E.
- CHICAGO, ILL.**
 Hicks, Adelaide
 Shirer, W. G.
- CLEVELAND, OHIO**
 Olson, Lois
 Rowe, F. A.
- CLIO**
 Schultz, A. F.
- COLDWATER**
 Good, L. O.
- CORUNNA**
 Hamill, B. M.
- COVERT**
 Carroll, Chas.
 McCarty, L. J.
- CROSWELL**
 Phillips, F. R.
 Tweedie, A. T.
- DANSVILLE**
 Yarnell, S. H.
- DAVISON**
 Evans, A. E.
- DECKERVILLE**
 Martin, G. L.
- DETROIT**
 Allen, Emilie A.
 Allen, Maude
 Andre, Ruba
 Arbury, F. W.
 Archart, I. J.
 Baird, James
 Barr, A. S.
 Bates, Guy
 Bedell, E. L.

Berg, A. E.
 Berkaw, H. R.
 Birkman, Geo.
 Bishop, Mrs. H. A.
 Blanchard, C. H.
 Boyer, C. J.
 Brown, Mary M.
 Browning, H. T.
 Caritas, Sister M.
 Cody, Frank
 Curtis, J. W.
 DeGalan, F.
 DeManigold, Mary
 Dondineau, Arthur
 Ellis, W. A.
 Emmons, O. A.
 Evangelista, Sister M.
 Fleming, Gertrude
 Fletcher, D. H.
 Forner, R. R.
 Frederick, O. G.
 Grant, Julia
 Grawn, C. T.
 Greene, Ruth A.
 Guysi, Alice V.
 Hammond, Ruby
 Hardy, Minnie C.
 Kepler, F. R.
 Lake, J. G.
 Lewis, Mrs. M. C.
 Lighbody, Wm.
 McAdam, Grace P.
 McAlpine, Elizabeth
 McBee, A. L.
 McGay, Alice
 McGuire, Alice
 Mahoney, Mary
 Merrill, John
 Morse, J. A.
 Parker, G. E.
 Price, F. A.
 Redden, J. E.
 Richmond, J. P.
 Samson, Anna
 Schamehorn, O. C.
 Shaw, E. R.
 Sowden, Anna G.
 Spencer, Leah A.
 Stevens, Mrs. F. B.
 Stevens, Roy W.
 Stoddard, Clara B.
 Sullivan, Irene F.
 Terpeney, D. J.
 Thomas, John F.
 Trybon, J. H.
 Tull, A. F.
 Voorheis, J. H.
 Weidemann, Mathilde
 Yendall, Edith
 Yost, E. W.

DETROIT
 BARBER INTER.
 Bullis, Helen
 Clemo, Pearl
 Lee, F. H.
 Lee, Ruth M.
 Templeton, W. B.
 Trainor, Esther
 DET. CASS TECH.
 Ackley, Alma
 Allen, A. W.
 Allen, E. G.
 Alliason, A. R.
 Allison, F. C.
 Althouse, A. D.
 Armstrong, E. C.
 Astleford, Josephine
 Bailey, Clara E.
 Ball, C. J.
 Bassett, Narcena
 Bauer, Eva S.
 Bedell, G. A.
 Belcher, T. W.
 Bishof, Adele
 Black, D. C.
 Blair, J. E.
 Boettcher, Roy
 Boldt, Gertrude
 Bowlby, G. M.
 Boyle, H. H.
 Bradley, Evangeline
 Bradt, F. T.
 Branigan, C. D.
 Bryant, L. M.
 Byrn, Clarence
 Cameron, J.
 Carter, May
 Chaney, L. K.
 Chapel, B. J.
 Chostner, G. C.
 Clark, H. A.
 Clark, Nellie
 Clark, R. P.
 Comer, Jack
 Comfort, B. F.
 Cooke, C. S.
 Davey, C. P.
 Dawson, Edwin
 Doub, A. V.
 Downer, A. E.
 Dudley, Ethelbert L.
 Early, Richard
 Egan, Ellen W.
 Emid, R. L.
 Farnsworth, Mary F.
 Finly, A. W.
 Fitch, Jeanette E.
 Fountain, A. W.
 Fuller, Hazel
 Gibson, Deborah M.
 Gillard, M. J.

Going, C. L.
 Goodfellow, Mabel B.
 Goodrich, H. C.
 Grazier, C. G.
 Gregory, G. E.
 Griswold, Lena N.
 Haddock, Laura
 Hamilton, P. S.
 Harma, J. C.
 Hayer, Helen N.
 Hayes, E. L.
 Hendrickson, J. R.
 Hinman, H. W.
 Hock, E. M.
 Hoffman, Cornelia
 Huffman, Lucy M.
 Jared, R. R.
 Jenney, H. R.
 Kantz, G. V.
 Keal, H. M.
 Kirkland, M. J.
 Koch, Helen
 Kochler, I. J.
 Kratz, Everett
 Laing, Winifred
 Lance, R. B.
 Larson, W. J.
 Linton, Mrs. Ellen
 Livingstone, Helen
 Lorenger, A. R.
 Ludwig, O. A.
 McCullagh, Sarah
 McMullan, H. C.
 Moeller, Amelia
 Moore, C. W.
 Moore, J. C.
 Mueller, Clara
 Mullica, J. M.
 O'Meara, Alleine
 Ott, B. E.
 Patterson, J. E.
 Phillips, Nellie G.
 Pliska, J. D.
 Potts, S. L.
 Pruitt, J. F.
 Putnam, Sarah M.
 Robbins, S. A.
 Rose, O. K.
 Ryan, J. P.
 Ryan, W. J.
 Salkeld, A. S.
 Schmelz, F. C.
 Scott, H. E.
 Smith, Edna
 Sprinkle, R. W.
 Stauffacher, E. M.
 Stormzand, H. A.
 Sutton, B. G.
 Takken, J. E.
 Thiery, L. E.
 Thomas, G. C.

- Willson, Gertrude
 Willson, K. A.
 Wilson, Louise B.
 Wolber, J. G.
 Woods, John
 Wrights, G. G.
 Zerber, W. E.
 Zindler, F. L.
- DETROIT CENTRAL**
 Anderson, Grace P.
 Andre, Elonia
 Arms, Nellie A.
 Baldwin, R. H.
 Banfield, Lois
 Bascom, E.
 Bidwell, Elizabeth
 Bishop, Helen L.
 Bogenrieder, Gertrude
 Bowerman, C. B.
 Brown, Leslie
 Burroughs, W. G.
 Cammett, S. H.
 Campbell, Caroline E.
 Carter, Mary
 Chapman, H. H.
 Coats, R. J.
 Collins, J. A.
 Copeland, Cornelia A.
 Craig, N. E.
 Drake, E. B.
 Fell, D. J.
 Fishbaine, S. S.
 Gibb, E. J.
 Gottschalk, Rose
 Hill, Audrey
 Hine, Katherine G.
 Hopkins, Florence
 Hurt, Mildred
 Jacobson, Ann
 James, D.
 Jones, Grace C.
 Kanouse, Marion
 Lang, Henrietta D.
 Lowry, Florella R.
 McIntyre, Ethel
 Malcomson, Rachel A.
 Mutschel, Matilda
 Nielsen, N. C.
 Patterson, M.
 Power, Mary F.
 Rhines, Minerva B.
 Richardson, Ruby
 Rosenthal, Phillip
 Sargeant, Charlotte H.
 Sargent, W. A.
 Schwartz, Elise M.
 Sickley, C. E.
 Sleeper, Mary
 Smith, Grace
 Sprague, R. E.
- Stocking, W. R., Jr.
 Thompson, Margaret
 Torr, Mary D.
 Vaughan, H. P.
 Watt, Isabella R.
 Wattles, Helen M.
- COLLEGE OF THE
 CITY OF DETROIT**
 Baldwin, J. W.
 Bates, F. O.
 Bird, E. J.
 Carter, G. W.
 Chase, Ethel W. B.
 Darnell, Albertus
 de Marivetz, Rachel
 Ford, J. T.
 Fowle, T. W.
 Gibb, H. L.
 Goodell, Blanche
 Hill, Grace A.
 Huebner, Charlotte
 Huffman, A. E.
 Irwin, F. C.
 Judkins, R. L.
 Levin, S. M.
 Mac Lachlan, D. C.
 Muller, Rene
 Phelps, E. R.
 Russell, J. H.
 Sanderson, Frances
 Selden, J. P.
 Tatlock, O.
 Wheatley, M.
- DETROIT EASTERN**
 Barry, Eleanor
 Barry, Irene M.
 Browne, E. Mae
 Chamberlin, Mrs. L. T.
 Cooke, Frances
 Dicker, Jane
 Dietz, Ada K.
 Drew, P. E.
 Duffy, Irene A.
 Elliott, Margaret
 Erwin, A. C.
 Fitzpatrick, Clare
 Foster, Christine
 Frazier, J. W.
 Frye, W. J.
 Fuhry, E. G.
 Gartner, Katherine M.
 Giertz, Selma
 Girardin, Celia
 Harvey, Caroline C.
 Hausc, Alice
 Henshaw, Charlotte
 Horton, Ethel M.
 Irland, Helen
 Johnson, Clara A.
 Klein, Adele L.
 McDaniels, Mildred
- Mann, L. B.
 Merriam, A. R.
 Moehlman, Nellie
 Oles, E. W.
 Palmer, Cora E.
 Pettée, Edith E.
 Putnam, R. R.
 Reichle, L.
 Remmert, W. F.
 Rosecrance, J. L.
 Sewell, Grace M.
 Sisman, Elsie
 Slack, H. S.
 Smith, E. H.
 Stecker, M. G.
 Strubel, R. H.
 Torell, Ebba
 Van Auken, Blanche
 Van Tassel, I.
 Waterbury, M. G.
 Welch, Myra B.
 Wendell, Laura
 Whitmer, F. H.
 Whittingham, Esther
- DETROIT, HIGH
 SCHOOL OF COM.**
 Allen, Ada
 Ammentorp, A. C.
 Bonney, Katherine
 Brock, E. G.
 Caldwell, Hazel
 Connolly, Helen
 Cross, Genevieve
 Edmunds, Ina E.
 Fulton, A. W.
 Gay, Beulah K.
 George, Harold
 Gringle, Agnes
 Hall, Alice
 Hamilton, Dyme
 Holland, Cora E.
 Holtschaw, J. L.
 Howell, J. C.
 Hoyt, W. J.
 Jones, M. L.
 Kidd, Irma H.
 Koepche, Marion
 Kruke, Margaret
 Labadie, S. N.
 LaFraugh, Bertha
 Layher, R. G.
 Phinney, Elise
 Rogers, Lloyd
 Ross, Ruth
 Sands, Charlotte
 Schell, H. G.
 Skeels, A. D.
 Slater, Inez
 Stowell, B. D.
 Stubbs, Frances M.
 Taylor, Mildred

Tilton, M. Edith
Ufford, Vic
DETROIT
HUDSON SCHOOL
Bald, F. C.
Carr, M. S.
Sherman, A.

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INSTITUTE OF
TECHNOLOGY
Borger, A. H.
Craim, J. H.
Henry, L. L.
Nimmo, R. M.
Winn, C. C.

DETROIT,
JEFFERSON
INTERMEDIATE
Little, Gladys M.
Watkins, E. Jean

DETROIT
LIGGETT SCHOOL
Campbell, Mary E.
Liggett, Jeannette M.
Pillsbury, Susan

DETROIT, NEINAS
INTERMEDIATE

Blew, Helen
Bromley, Edna
Gabriel, Edith
Goodrich, Edna
Mans, Louise S.
Nunelly, Della
Richmond, Ina
Sooy, Helen
Vollmar, Paul

DETROIT
NORTHEASTERN

Ball, Beatrice H.
Barley, Edith M.
Beeman, C. W.
Bourke, Helen
Bright, Alma A.
Brown, S. H.
Cannon, Lillian J.
Chase, C. M.
Clayton, A. C.
Cooper, L. G.
Cox, C. C.
Crawford, Irene
Dail, J. B.
Dolewcznski, E.
Eddy, H. N.
Foster, Frances A.
Fyan, Lila
Gardner, L. B.
Gould, R. H.
Graham, A. A.
Green, Grace
Greene, A. D.

Hamilton, Laura
Hiller, C. H.
Hoffman, Harriet
Hoppe, E. R.
Hutchins, Kate M.
Jend, Hildegard
Kerr, Sara
Kolb, Marguerite
Ladd, Bessie F.
Mullen, Mrs. S. W.
Novak, Chas. M.
Plee, N. Octavia
Porey, Aniela
Porter, H. C.
Raycraft, R. E.
Riksen, Harriet A.
Ripley, Alice
Robinson, Grace S.
Robinson, Sarah
Ruhlman, Marie
Runkel, Della L.
Sanford, J. B.
Shaw, Lola M.
Sugar, Victor
Sweet, Dorothy
Tomlinson, G. E.
Wales, Emma
Watts, E. C.

DET. NORTHERN

Allen, Helen
Allman, R. V.
Babb, A. L.
Barnes, C. C.
Bartlett, A. E.
Bastedo, Marion
Bishop, N.
Blanchard, C. W.
Braun, Marie L.
Brown, A. H.
Caswell, W. S.
Clawson, Edna A.
Cooke, Laura L.
Corns, Alice
Crosthwaite, R. O.
Dean, Maybelle
Deming, Delcia
Edloff, E. E.
Ellsworth, B. B.
Fave, E. H.
Fillingham, Ermina
Gwinn, Lillian
Hart, H. J.
Hayes, H. B.
Hill, B. E.
Isbell, W. N.
King, Blanche L.
King, Ruth E.
Knapp, Isabel
Knight, Jean B.
Lamport, H. B.
Lane, H. A.

Lutz, Gretchen
MacDonald, Buda
McGannon, Edith L.
McGrath, A. L.
MacKenzie, Florence
McRay, E. J.
Madden, W. J.
Malone, Bertha
Miller, E. L.
Miner, Mary L.
Moon, Cecile W.
Paulus, Mary S.
Plumb, L. F.
Pulford, Bertha C.
Rolfe, E. C.
Russell, Adelaide
Schaible, Clara K.
Schindler, J. R.
Schmidt, M. E.
Sharpe, Clara
Skimin, Eleanor
Small, Eva B.
Smith, Florence M.
Snell, Mary
Snover, Agnes
Sutherland, Olive M.
Tanis, J. E.
Teninga, Gertrude
Thorpe, Janet
Todd, S. Edith
Toland, Jessie
Voorheis, Zadie
Walsh, May F.
Ward, Louise
Watkins, E. E.
Wood, Mabel L.
Wulff, A. J.
Yokom. M. C.
Yost, Ruth
Zinck, May

DETROIT

NORTHWESTERN

Alley, Sadie M.
Barget, H. C.
Beebe, Ruth A.
Berkaw, Margaret
Black, Isabelle M.
Bovill, J.
Bovill, Mable H.
Braun, Charles
Bright, Cora E.
Brown, Frances J.
Burgess, L. G.
Butler, Martha A.
Cavanaugh Catherine
Cline, A. M.
Cline, Doris A.
Clough, Susanna A.
Condon, Gertrude R.
Conrad, M. H.
Cooper, Elsie E.

Covey, Blanche
 Coyle, Harriette
 Crawford, Ruth W.
 Duffy, Genevieve K.
 Emmons, Deda L.
 Fraser, R. D.
 Gaines, Muriel R.
 Gilpin, A. R.
 Hardy, Alice M.
 Hill, Florence J.
 Holmes, Mary F.
 Holtman, Lydia
 Howes, Mary F.
 Hulbert, W. O.
 Huston, Ruth E.
 Jaehnig, May S.
 Jones, A. F.
 Jones, Laura J.
 Keppel, Anna K.
 Lampkin, Irene
 Lane, Edna M. F.
 Ludke, C. W.
 MacDonald, Vilena
 McGrain, Gertrude
 McGuinness, J. P.
 McNally, J. V.
 Maichele, Grace
 Maris, Mrs. B. G.
 Merriam, Beatrice
 Munro, C. N.
 Neil, Eleanor
 Newcombe, Rachel
 Orth, Louise
 Porter, J. E.
 Ralph, Helen
 Rauch, Mrs. Edith
 Rivett, B. J.
 Roehm, Dorothy
 Ryman, Rachel S.
 Sheehan, Sarah E.
 Simpson, Shirley
 Sparling, Mary
 Starr, Clara E.
 Strickland, Eva
 Twitchell, R. D.
 Vorys, Hope S.
 Vyn, Clarissa
 Wade, W. M.
 Walker, Margaret
 Watson, Emily T.
 Wentworth, W. H.
 Wiley, Phyllis
 Wilson, Jean W.
 Wilson, S. R.
 Winning, Esther
 Winton, Grace E.
 Wood, F. A.
 Woodbeck, Bernice
 Wyman, Alice
 Wyman, Charles

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 Beebe, Faye
 Bender, E. R.
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 Blue, John
 Bowyer, Helen
 Brewer, Mary
 Carr, Henrietta
 Converse, Helen J.
 Copeland, Carrie E.
 Corns, J. H.
 Creech, May E.
 Currey, Meroe
 Curtis, Erta
 de Vries, Marie
 Douglas, Catherine
 Dow, Caroline M.
 Ellis, D. J.
 Gardner, Lucy W.
 Gould, R. D.
 Hackman, George
 Haigh, Margaret
 Harvey, Elizabeth
 Hendershott, Edna
 Holloway, Doris
 Johnson, Lyda H.
 Jones, G. W.
 Kehoe, Roberta J.
 MacDonald, Frances
 MacFarlane, Florence
 McFarlane, Janet
 McHugh, D. C.
 Martin, Rose F. N.
 Mason, Elizabeth
 Minick, P. A.
 Murray, L. Madge
 Palmerlee, Grace E.
 Panfil, A. C.
 Parks, Anna S.
 Phelps, Nancy S.
 Phelps, Sarah J.
 Phillips, Frances
 Powers, Ruth
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 Roys, H. N.
 Sargent, Alice F.
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 Shimp, H. R.
 Smith, Gladys
 Smith, O. S.
 Sotto, Mrs. Vincent
 Spafard, Myra B.
 Stewart, Margaret
 Stowell, Marjorie M.
 Sullivan, Margaret
 Sullivan, Mary G.
 Thompson, E. C.
 Van Norman, Marjorie

Walker, Henrietta
 Walsh, Mary E.
 Ward, Ruth
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 Wood, Adelaide
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 SOUTHWESTERN

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 Benson, E. F.
 Braun, Ruth
 Canfield, Gladys
 Davis, Marion A.
 Ettinger, L. P.
 Hamilton, Amanda J.
 Harrington, Hazel
 Harwick, C. A.
 Knowles, Viva
 Lauer, Marguerite
 MacHale, Kathleen G.
 McMillan, D. W.
 Mailhot, Elizabeth
 Marsh, Alice Louise
 Miller, L. W.
 Mote, E. L.
 Murdock, G. W.
 Nettleship, Winnie
 Parke, Cleantha
 Pinnoch, J. F.
 Robb, Irene S.
 Robinson, Viola B.
 Savage, Joanna
 Seaver, O. G.
 Slick, R. A.
 Stone, Raymond
 Strohmer, R. H.
 Voegelin, Ardis
 Walsh, Genevieve
 Wilson, Lenore
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 Hotchkiss, L. E.

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 Conover, L. Lenore
 Courtis, S. A.
 Fiero, Maude
 Jacobs, Emma
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 Muffitt, T. S.
 Newman, Lillian
 Pritchard, Martha C.
 Stratmeyer, Florence

- Worden, Orpha E.
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Hempsted, Joanna K.
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Hendricks, Loretta
Hickok, D. W.
Holmes, E. L.
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Houghton, Agnes
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Kerns, Martha
Liskow, Julia M.
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Sanford, P. C.
Scott, Margaret
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Sibley, Katherine
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Morrison, L.
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Krause, A. W.
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Vander, Velde, Alice
Webster, Elizabeth
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Straight, C. F.
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Graham, H. A.
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Ralya, Chas.
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Creaser, Marion
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Moore, Hazel
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 Benjamin, Anna
 Boice, Edith
 Brochery, Jeanne
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 Brown, J. L.
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 Card, Marjorie
 Carpenter, Agnes
 Caswell, J. T.
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 Crandall, Blanche
 Crandall, Joan
 Dahl, J. L.
 Davison, Evelyn
 DeLand, Mary L.
 Dorsey, C. L.
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 Fisher, O. H.
 Galatian, Jane
 George, Beulah W.
 Graves, S. A.
 Grubb, S. P.
 Hatcher, H. E.
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 Hiller, Aletha
 Holmes, Florence M.
 Hubbell, Winifred
 Huffman, Edna
 Huffman, Roy B.
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 Karchner, Lucile
 Kennedy, Jessie M.
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 Kinney, Agnes W.
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 Knapp, T. J.
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 Lynch, Gladys
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 MacKay, Jean A.
 MacPhail, Ruth C.
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 McHugh, Anne K.
 McLeod, Agnes A.
 Mansell, Edith
 Miller, P. D.
 Mitchell, Anne L.

Moore, Florence
 Mumford, E. H. E.
 Orr, Kate J.
 Palmer, Sadie J.
 Potter, E. G.
 Prakken, Wm.
 Preston, Ethel
 Purmort, Genevieve
 Quigley, Bly
 Rish, Laversa M.
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 Russell, H. R.
 Russell, M. A.
 Ryan, Elizabeth
 Schmidt, Wilhelmina
 Seaver, Meryl
 Sherrod, Lowella R.
 Shilling, Mildred
 Smith, R. H.
 Stearns, Virginia
 Streater, Emma B.
 Sturgis, Doris
 Taylor, Ethel
 Thomson, Evelyn
 Tiedgen, F. A.
 Van Loon, G. E.
 Vansaw, R. P.
 Varson, Nina
 Waite, R. E.
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 Willison, Mabel C.
 Wilson, Jane
 Wines, Emma
 Yaple, Mrs. E. P.
 Yorks, Anna M.

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 Clark, C. B.
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 Douglas, Raymond
 Fess, G. M.
 Kiebler, E. W.
 Mauck, J. W.
 Moore, Mrs. Viola
 O'Hanlon, Avis

HOLLAND

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 Hockje, Hannah
 Nykerk, J. B.
 Rodgers, Lida
 Welch, R. H.

HOLLY

Wiggins, Claribel

HOWELL

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 Scholl, Dorothy
 Sharpe, Alma E.

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Stonex, A. B.

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Kantner, J. N.

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 Bliss, F. L.
 Bolster, Edith G.
 Bradley, Nelle
 Britten, Caroline E.
 Buchanan, Edna
 Burt, Ida M.
 Chase, J. E. F.
 Coy, Jennie M.
 Culver, Ida
 Dabbs, C. R.
 Densmore, Jean
 Dickinson, Harriet C.
 Dorr, A. W.
 Eberly, Thelma
 Edger, E. J.
 Fenton, C. S.
 Field, Florence E.
 Fitton, Edna L.
 Fox, Deyo B.
 Froh, L. A.
 Gilliland, Gwendolen
 Griffith, Frances
 Hall, Florence B.
 Hankard, Jane
 Hankins, Faye
 Hawks, Alice
 Henderson, Beulah
 Higgins, Beatrice
 Hollon, Louise
 Howe, Percy
 Ingraham, Parepa
 Johnson, O. M.
 King, Edith A.
 Kopplin, H. H.
 Kress, Margaret
 Lange, H. C.
 Layer, Edith E.
 McCulloch, G. L.
 McNeil, E. W.
 Mackall, Ella
 Marsh, E. O.
 Mason, A. R.
 Matson, G. E.
 Matthews, Fred
 Maverly, Alice
 Merriman, Marie
 Molloy, Myrnie
 Mudge, Harriet M.
 Mummery, Mary V.
 Newark, G.
 Owen, C. C.
 Parker, P. F.
 Paschke, L. A.
 Powell, Laura A.
 Ramsey, Hazel
 Reed, Roberta

Remley, O. R.
 Replogle, Minnie
 Rings, Edith P.
 Scott, Helen A.
 Sdunek, Ottelia
 Seay, Nellie
 Shearer, Margaret
 Sherman, Elizabeth
 Simon, Ruth
 Skillen, Elizabeth
 Slater, Mary
 Snow, Helen K.
 Spreen, Ruth E.
 Steger, Alice A.
 Stone, Beatrice L.
 Stone, Edith M.
 Swarthout, Alice M.
 Tappan, Elaine H.
 Taylor, Hazel B.
 Tischer, Mary H.
 Trumble, O. S.
 Tussing, Marian L.
 Wackman, C. A.
 Wardner, C. A.
 Weick, Elizabeth
 Wilcox, Elizabeth L.
 Wilder, A. S.
 Young, Alma M.
KALAMAZOO
 Donney, Russell
 Eaton, Ruth
 Gregg, Jessie S.
 Heathcote, D. J.
 Holmes, Albert
 Kantz, P. C.
 Milham, Gertrude E.
 Parsons, W. W.
 Pattinson, Marian
 Rosewarne, Nellie
 Sangren, P.
 Shumar, E. M.
 Walton, Jessie S.
 Winslow, Florence
 Young, W. C.
KALAMAZOO COLL.
 Praeger, W. E.
KALAMAZOO, WEST-
ERN NORMAL
 Ackley, H. M.
 Bartoo, G. C.
 Burnham, Ernest
 Burnham, Margaret
 Blair, Harold
 Cain, W. H.
 Ellis, M. M.
 Ellsworth, F. E.
 Everett, J. P.
 Fox, J. E.
 Goddard, H. N.
 Hadley, Theodesia
 Henry, T. S.

Hilliard, G. H.
 Hoekje, J. C.
 Rood, Paul
 Scott, Nancy E.
 Tabraham, G. E.
 Waldo, D. B.
 Wick, Cordelia
 Wood, L. H.
LAMBERTVILLE
 Conant, John
LANSING
 Barber, Caroline
 Bishop, E. J.
 Blackledge, F. S.
 Bradford, D. W.
 Bristol, Nina E.
 Butterfield, Kate
 Cameron, E. T.
 Cooper, R. W.
 Crabbs, Josephine
 Dowden, W. M.
 Dowden, Mrs. W. M.
 Forsythe, C. E.
 Freegard, Ruth
 Gallup, E. E.
 Gardner, H. E.
 Gill, Auda C.
 Goodhue, Florence A.
 Hall, E. M.
 Hall, Marion E.
 Hunt, Beatrice
 Johnson, T. E.
 Le Furge, C. E.
 Leisenring, Jennie
 McCurdy, H. V.
 McPhail, H. D.
 Pfaff, H. B.
 Smith, K. G.
 Sexton, J. W.
 Slaughter, J. W.
 Trickey, Elva
 Westphal, A. F.
 Wilbur, Etta R.
LAPEER
 Beach, L. H.
 Cobaugh, Myra
LINDEN
 Burr, C. J.
LOWELL
 MacVean, R. J.
MANCHESTER
 Jacob, Gottlieb
 Nurnberger, Mrs. Edith
 Nurnberger, Thos.
MANTON
 Zinn, W. R.
MARCELLUS
 Davidson, F. D.
MARINE CITY
 Stohmer, Dorothy

MARQUETTE,
NORTH'N NORMAL
 Brown, G. L.
 Clark, A. Bess
 Lewis, W. F.
 Spooner, C. C.
MARSHALL
 Creaser, C. J.
MASON
 Durfee, Joyce
 Kennedy, J. E.
 Shawley, G. E.
 Shawley, Mrs. G. E.
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MIDLAND
 Boyne, E. M.
 Heatley, L. G.
 Shipps, G. L.
MILAN
 Frye, Myrna M.
 Laing, H. E.
 Paddock, V. D.
 Willard, W. A. L.
MILFORD
 Osgood, Louise
 Tripp, W. J.
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 Barromeo, Sister M.
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 Cantrick, G. T.
 Columba, Sister M.
 Gilday, Selma
 Immaculata, Sister M.
 Jerome, Sister M.
 Spencer, D. S.
 Spencer, Mrs. D. S.
 Witting, Amanda H.
MT. CLEMENS
 Bailey, Rena
 Bailey, Ruth L.
 Benson, Gertrude
 Bogert, Velda
 Camburn, Bessie
 Carlson, G. E.
 Daeubler, Hulda C.
 Fast, L. W.
 Forsyth, Teckla
 Lockwood, Olive E.
 Neale, Mrs. Hugh
 Nicholson, E. H.
 Nyland, Esther
 Olmstead, L. H.
 Pratt, Gertrude
 Rigg, H. H.
 Rowan, Ethel
 Schmutz, Margaret
 Sharland, W. G.
 Ward, R. W.
 Warner, R. C.

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CENTRAL NORMAL
Beddow, I. A.
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Cobb, M. A.
Fox, Karolena M.
Hogue, Rose J.
Larzelere, C. S.
Merrill, E. J.
Minor, Van Lieu
Pearce, W. H.
Ronan, Bertha M.
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Bedker, Ebba H.
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Fuller, E. G.
Gaul, T. J.
Meier, Alexina
Reynolds, Jessie M.
Snyder, Gladys
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Pullen, D. F.
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MacHenry, Edith
Norcross, S. A.
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 Canfield, A. G.
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 Field, Peter
 Field, S. E.
 Finney, B. A.
 Finney, Mrs. B. A.
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 Ford, W. B.
 Frayer, W. A.
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 Gillette, Fredericka
 Glover, James W.
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 Hall, A. G.
 Hildebrandt, T. H.
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 Lorch, Emil
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